PETROLEUM WEEK

MARCH 9, 1956

■ A McGRAW-HILL PUBLICATION

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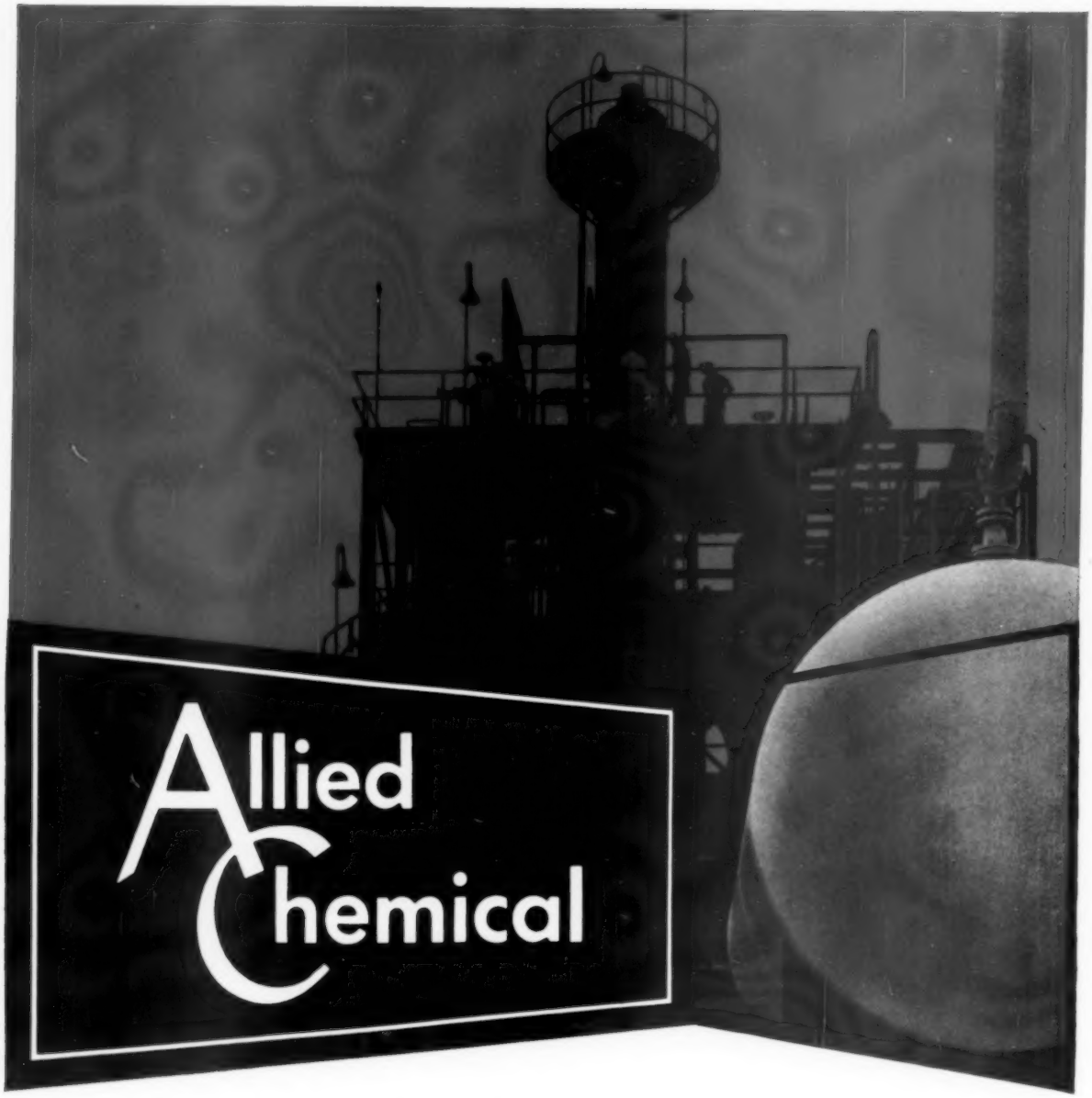

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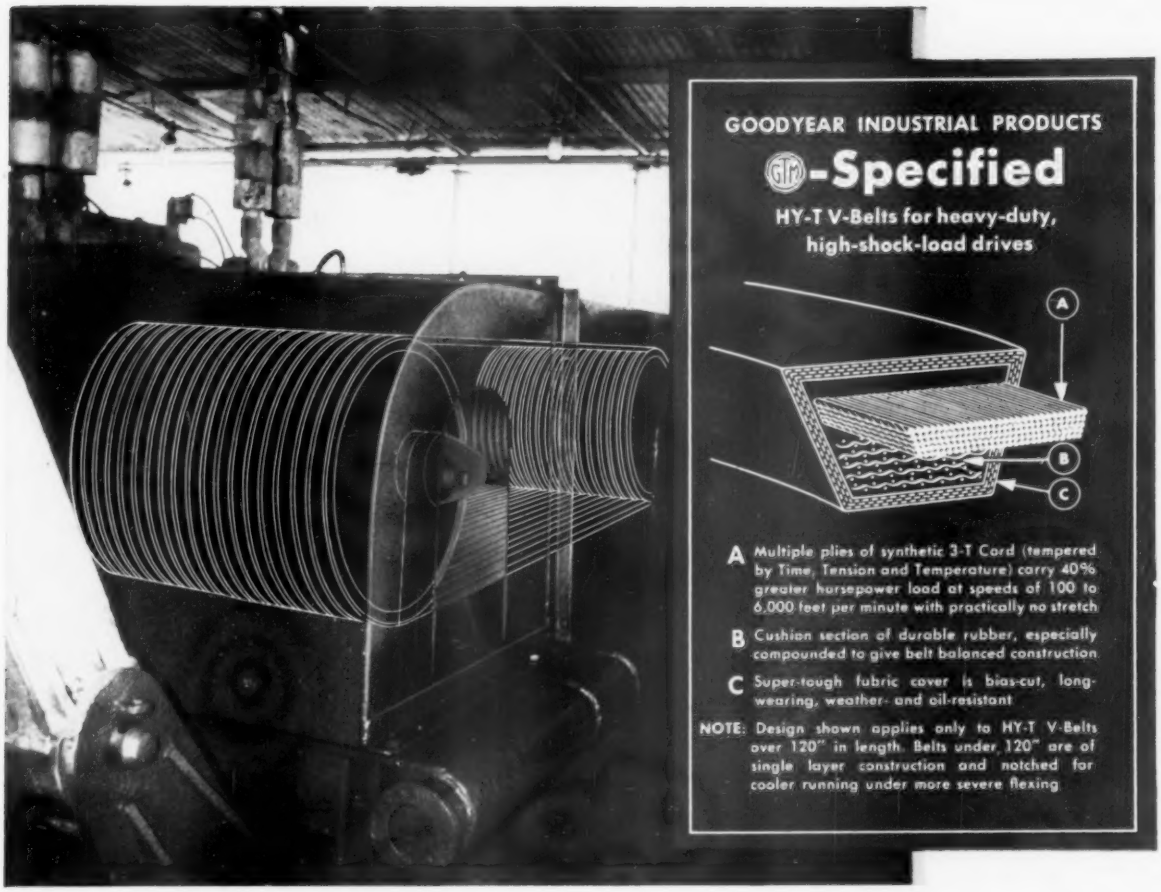
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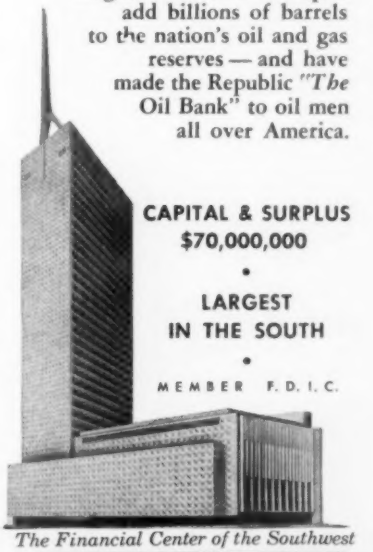

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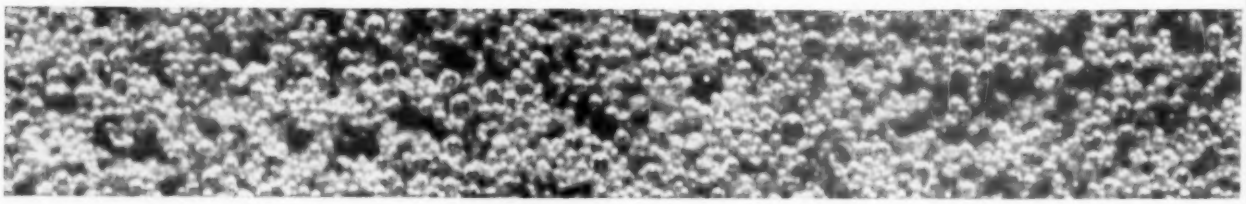

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60-Second Summary / WHAT'S HAPPENING IN OIL

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March 9, 1956

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Does Russia have a revolutionary turbodrill? Some experts in the U. S. oil industry, which has struggled with the problem for more than 30 years, are skeptical. But Dresser Industries, convinced the Russians have something, has contracted to bring 24 tools and four engineers here—if U. S. authorities permit. . . . **pp. 10, 16**

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Some natural gas producers face a choice: Be regulated by FPC and pay one tax or be exempt and pay two taxes. FPC has ruled that those who don't handle their own sales, such as unitization members, will not be regulated. But they'll be subject to both corporation and individual taxes. . . . **p. 11**

•

Slim hole drilling is winning more and more converts. Economy is the reason. Advocates claim the smaller hole can be drilled cheaper because of savings in time, mud, cement, and casing. However, some critics say there are offsetting disadvantages, such as bit trouble. . . . **p. 14**

•

The oil industry, getting bigger and more complex, is running into problems which are also bigger and more complex. Probes, public opinion, rising costs, controls, and the scramble for competent personnel are some of the major worries that are keeping oil men awake nights. . . . **p. 9**

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The Oil, Chemical & Atomic Workers Union may get a membership boost. OCAW officials will meet Mar. 17 with leaders of the International Chemical Workers to talk merger of the two AFL-CIO unions.

•

The government is encouraging development of a nationwide network of interconnected gas transmission lines. FPC says this would permit tapping alternate supplies in an emergency. However, some industry experts question the feasibility of the gas "grid" idea. . . . **p. 30**

•

Increasing emphasis is being given catalytic reforming as the best approach to making high-octane motor fuels. Esso, for example, has just taken the wraps off a new reforming process called Powerforming. . . . **p. 28**

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The queasy period for gasoline is here. Supply is plentiful, and refinery runs look high. Prices are apt to get easier before they get strong. . . . **p. 35**

•

Independent refiners may get better breaks in the future, if a program being planned by the Independent Refiners Assn. of California pans out. The group hopes to improve marketing conditions, get a larger share of military purchases, and to scout for cheaper crude. . . . **p. 32**

Looking Ahead in Washington

McGraw-Hill
Washington
Bureau
March 9, 1956

The Middle East crisis will influence upcoming oil decisions in Washington. Rising nationalism in the oil-rich area—and the danger of an Arab-Israeli war—are serious diplomatic problems for the U. S. It is vital that the tremendous petroleum reserves in the area remain in friendly hands. Handling of the political situation inevitably will affect the U. S. oil picture.

This shows up in the oil import controversy. The National Security Council has already ruled that the U. S. must place primary reliance on resources close to home. That's why Western Hemisphere crude gets a special break in the voluntary import restriction program. But Middle East oil is considered vital to Western Europe and to U. S. forces in the Mediterranean area. So don't look for Defense Mobilizer Flemming to take any drastic action which would upset the delicate balance in the Middle East.

•

Middle East oil is growing as a domestic political issue. Zionists such as Rep. Emanuel Celler (D.,N.Y.) want to show that the U.S. has "appeased" Arab militarists because of the international oil companies' influence in the State Dept. They want Eisenhower to order an investigation. The main target: Under Secretary of State Herbert Hoover, Jr.

And look at the new push behind development of oil-shale reserves. The House refused even to vote enough money for the limited activity planned by the Bureau of Mines in plants at Rifle, Colo., and Laramie, Wyo. Now it looks as if the Senate will restore the funds, after hearing arguments that development of the shale is a "must" in view of the tense situation in the Middle East.

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Oil men are again split on the issue of trade legislation. This time it's an Administration-sponsored bill for U. S. membership in the Organization for Trade Cooperation. OTC would facilitate U. S. cooperation with other nations to ease trade restrictions. Major oil companies favor this move. Opponents—including the Independent Petroleum Assn. of America—object that membership in OTC would hamstring future efforts by Congress to impose quota restrictions on oil or other commodities. Final passage of the bill is extremely doubtful.

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A consent settlement in the "oil cartel" case is under study at the Justice Dept. However, Attorney General Brownell probably won't go along with a staff recommendation to this effect. There's strong pressure within the department to make terms of the settlement so harsh they would be unacceptable to the oil companies. Whether any consent settlement at all would be acceptable to the oil companies is an open question.

•

The Celler subcommittee next month will rehash the long-standing issue of "good-faith" price cuts. The House antimonopoly group will open hearings Apr. 18 on the Patman and Roosevelt bills. The Patman measure would remove good-faith meeting of competition as a valid defense against price discrimination charges. And the Roosevelt bill would help disgruntled gasoline dealers hale their suppliers into court. But there's little chance for passage of these measures this year.

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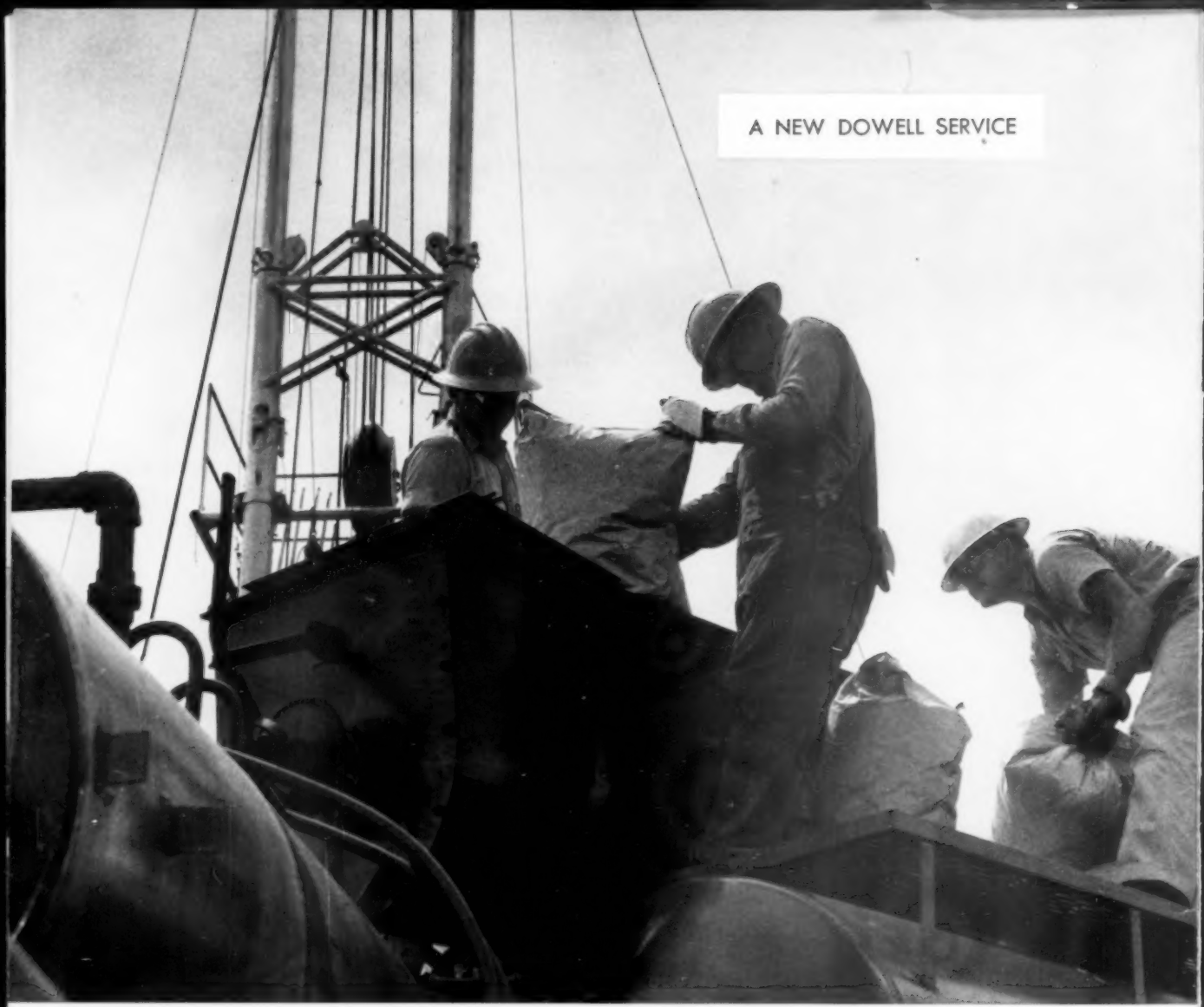

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What Is Worrying Oil Men Most?

A check of the industry's pulse reveals these causes:

RISING COSTS

PRICE INCREASE?

DEPLETION ALLOWANCE CUT?

EFFICIENT PERSONNEL

EFFECT OF GAS BILL VETO

FINDING MORE OIL, CHEAPER

Business was brisk in the oil industry this week. Demand was holding strong. Most 1955 annual reports, now being made, were showing that last year was one of record earnings. The prospects were that 1956 would be just as good—maybe even better.

No one could see any sign of an approaching depression or other disaster.

Ask just about any man in the street and he'd tell you the oil industry was sitting on top of the world. He'd say he would swap his worries for those of an oil man any day.

Yet the industry has its worries—real, not imaginary. Some are little, irritating ones. Some are of sleep-robbing, ulcer-growing proportions.

Petroleum Week, *in a survey of all segments of the industry in all parts of the nation, found that some problems are regional, even individual. But it also found that some are widespread, cropping up in many places. The following were the worries mentioned most often:*

I. Gas Bill Veto

The immediate and long-range effect of the President's unexpected veto of the natural gas bill heads the industry's worry parade.

A major oil company attorney in the Southwest puts it this way: "It's the aftermath of the veto that I'm worried about. It looks like the oil industry is going to get the hell smeared out of it by all these investigations.

"It seems to me like some of those fellows up there in Washington are just after the oil industry."

A California oil man says the veto has opened the industry to congressional investigations, FBI probing and "all sorts of trouble with its entire federal and state legislation problems."

Gas producers, in particular, say federal controls confront them with burdensome, expensive red tape. Almost to a man, those questioned feel that gas exploration and production will slow down. A Texas production firm executive sums it up: "We have wells that are capable of producing a lot more gas than they are, but if we have to hire a lawyer and go to court to get higher rates, it's just not worth it."

Drilling contractors and well servicing firms figure they are apt to feel this slowdown in gas activity.

Oil producers, too, are disturbed. They point out that control of gas is only a half-step from control of crude production. And some interstate pipeline firms fear difficulty in getting new sources of supply.

But it's the broader impact that has the industry as a whole worried: The possibility that anything can happen in an anti-oil atmosphere. It could stimulate further attacks on the industry, worsen its public-relations position, and encourage states to pass more restrictive legislation against an "arrogant" industry.

II. Price Rises

Almost every segment is worrying about rising costs, and about the impact of increased oil-products prices, which many feel must be in the offing to offset the higher costs. Time after time, PETROLEUM WEEK interviewers found oil officials pondering the problem of dwindling profit margins. These are some examples:

- An official of an integrated company in Texas: "I have been worried about the price of crude oil for some time now. I feel that a price increase is indicated, and desirable. With those wage hikes that just went through, we need to have a higher crude price to balance these expenses."
- A Western producer: "Crude costs have gone up about 20% since the last price adjustment. For instance, costs of casing and tubing have gone up 19%, pumps 23%, tankage 11% to 12%, specialties 10%, and payrolls 16%."
- An official of a Rocky Mountain oil field equipment and servicing company: "We are facing rising costs of materials. It's hard to maintain our price levels in the face of these higher costs. We are striving to streamline our bookkeeping methods and anything else that might keep our prices down."
- A production company general manager: "Our biggest problem is the

going price for drilling in the field. The cost of supplies has gone up while the price for drilling has gone down."

• A midwest refiner-marketer: "The refiner-marketer is faced with constantly increasing costs—crude price increases, more costly tetraethyl lead, higher selling costs and rising labor, and chemical costs in the refinery. These are basic costs over which a refiner has no control."

• Another refiner: "The refiner's margin today is growing smaller. Percentagewise, his margin today is no larger than that of the corner grocer, yet he must be prepared to produce large volumes of product and to make huge investments, and still expect a smaller margin of profit on each product. Selling prices just haven't kept pace with the increase in costs of refining and marketing."

• A large jobber: "Our biggest worry is the increasing cost of operation, especially insofar as labor is concerned. The jobber is caught in a squeeze on labor costs. Yet his margin remains pretty well fixed."

III. Manpower

The shortage of efficient manpower is often listed by oil men as their gravest problem.

"The big problem facing us," a servicing company official says, "is finding men qualified to do logging and perforating. It takes from eight months to a year to train a man for this type of work."

Another official emphasizes the same problem: "This manpower shortage is really something. With all this offshore drilling going on, we have an expanding market which requires more and more personnel. The different service companies here are robbing each other of employees."

A Chicago oil-terminal official pins part of the blame on high taxes. He figures they tend to rob a man of his incentive to get ahead. "A man isn't going to break his back to get a promotion—with more headaches and responsibilities—if he sees that most of the salary increases will go to taxes," the official says.

A Midwest oil company president says that stimulating people to act, and making sure that the company's internal relations are good, are his principal worries. He believes that good internal relations lead to efficiency and better "outside" relations.

For the most part, the personnel problem seems to boil down to this: With the industry expanding, and with more and more complex equipment being used, more skilled help is needed for all phases, from exploration and drilling on through to marketing. And as companies grow, there is a greater need for young executives who can play an increasingly important role in management.

IV. Steel Supply

The availability of steel is causing considerable concern. A Tulsa oil company president says the shortage, particularly of tubular goods, is becoming more and more acute.

"The problem is one of simple economics," he says. "Demand is substantially greater than supply. This is true not only in the U. S., but throughout the world." He says the outlook for the future promises no relief; in fact, the situation may get tighter.

Shipyards building offshore drilling platforms are reporting delays of up to a year in getting needed steel. A tank car manufacturer says that steel scarcity is impeding new construction. A Southwest producer says his firm is facing a pipe shortage.

One official was philosophical about it: "Tightness in steel is an indicator of good times, so I'm not complaining about it."

V. Other Worries

Fear of the new attack on the depletion allowance, gasoline price-war probes and problems, the high level of gasoline stocks, the need for stimulating more exploration, the increasing difficulty—and cost—of producing oil, and foreign oil competition are other problems which keep oil men awake nights.

Talking about a possible cut in the depletion allowance, a West Coast independent says a reduction in the present allowance would be a major catastrophe. "The greatest percentage of wildcat wells are drilled by the independent oil man, the marginal producer," he says. "Take away the incentive of the depletion allowance and he won't be able to drill."

There was one man covered by the PETROLEUM WEEK survey who said he had no oil worries at all. The reason: "I liquidated my company," he says.

Soviet-Dresser Deal Up to U.S.

Consent of United States security officials was the one remaining block this week to the manufacture of the Russian turbodrill by Dresser Industries, Inc., of Dallas.

J. B. O'Connor, executive vice-president of Dresser, secured ten-year rights to the device last week at Moscow in a contract signed with the Machinoexport organization of the Soviet Trade Ministry.

The pact came after O'Connor had spent several days with Soviet engineers in the Tatar and Bashkir fields of the Ural foothills, 1,200 mi. east of Moscow. After witnessing the comparative results of turbine and rotary drilling methods there, he was quoted as saying: "Their turbodrill is 10 times as fast as our conventional rotary drill . . ." (For further opinion and detail on the drill, see page 16.)

Dresser may find that Moscow was easier to persuade than Washington.

Dresser's reputation for high-quality equipment has made it a favorite supplier of the Russians for many years. The company made substantial sales to Russia before the cold war pinched off trade in 1948. It was also one of the first American companies to investigate the possibilities of reviving Russo-American trade following the thaw in the cold war at the summit conference in Geneva.

Thus, it is logical that the Russians should turn to Dresser as a company with the ability both to manufacture the drill and to supply sorely needed equipment in return.

Washington sources say the Soviet is primarily interested in making a deal for equipment high up on the security export-controls list.

Dresser's problem will be to convince security-controls officials that the drill is worth more to national security than the strategic materials we would ship in return. That won't be easy. Some officials say that, from what they've heard, the drill seems to involve a relatively simple design which perhaps could be duplicated here through independent research.

Dresser will argue that Soviet know-how, more than the drill itself, can make a substantial contribution to American petroleum progress, it was indicated in a Paris interview this week.

"I wouldn't give a dime for their turbine plans," O'Connor told PETROLEUM WEEK. "But their know-how and experience are invaluable." He pointed to the Russians' long experience with the drill in areas which are geologically similar to some fields in the U. S.

The Russian method would presumably be demonstrated shortly after the first tools arrive in April.

Dresser is obtaining 24 turbines of various sizes for use with bits manufactured by Dresser, which has itself experimented with the turbo technique. While no demonstration sched-

ule has been set up, initial drilling would likely be done in the hard-rock formations of West Texas, O'Connor indicated in the Paris interview.

Dresser is convinced of the ultimate economy of the technique.

O'Connor declined to make an outright comparison between the costs of turbine and rotary drilling. But he implied that, even if initial costs of the turbo are higher, total costs in difficult drilling areas could be far less.

If the Soviet turbo is successfully introduced, it would be the Russians' first contribution to American technology.

Before World War II the Soviet Union was fighting to catch up with the West industrially, and had few if any original ideas to contribute. In the immediate postwar period, the Soviets were faced with a vast job of reconstruction.

But the Soviet Union is now in a position to make many contributions.

The Russians have a broad industrial base and are developing their industry and corps of technicians and scientists at a faster rate than the United States. It is logical to assume that, as this trend continues, it will create many opportunities for two-way exchange of technical know-how.

Tax Dilemma for Gas Producers

● Some natural gas producers don't want to be exempt from federal control, for tax reasons.

● In a unitized field, they could escape regulation, but might then be subject to two taxes—a unit corporation tax as well as their own individual tax.

Several thousand natural gas producers face a knotty problem: Whether it's worse to be under federal control and pay one income tax, or to be exempt from that control and face the prospect of double taxation.

The Federal Power Commission thought it was doing itself and many producers a favor when it decided it was not required, legally, to regulate producers who have no control over the selling price of their commodity because it is sold for them.

This would mean that the bulk of producers in unitized fields would be left alone. So would producers in other fields where the processor is authorized by contract to sell gas for all owners in the field. The unit operator or processor who actually makes the sale would bear the burden of regulation.

Because of this approach, rate schedules filed with FPC number only about 2,300, although the Bureau of Mines reports that about 8,000 producers are selling gas that moves in interstate commerce.

Keenly aware that producers oppose federal controls, FPC was surprised to learn that some producers aren't happy about their exemption. Here's why:

As members of a unitization plan they could escape control, but some fear they would be subject to payment of their share of the unit's corporation tax—and their individual tax, too.

An Internal Revenue Service official told PETROLEUM WEEK this week: "I would say that the producers' fears are well founded."

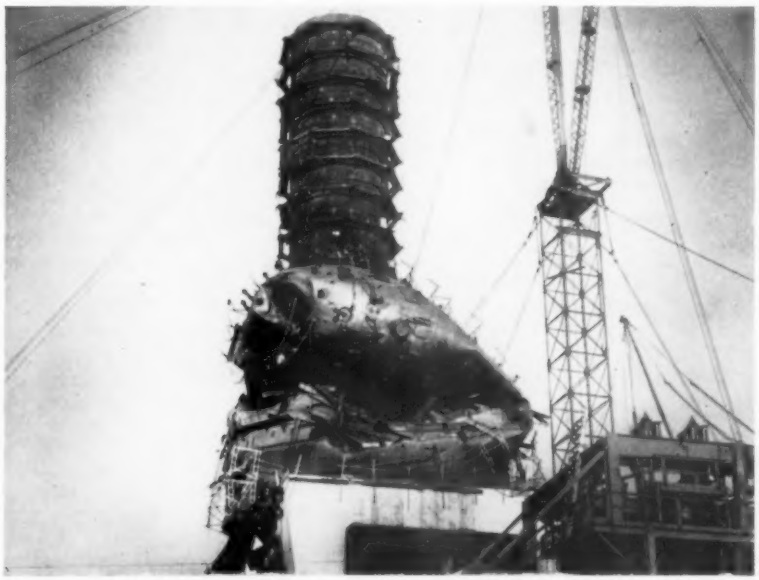
He explained that under a 1948 ruling, whenever a group of persons associate or join a joint venture, with one of its members appointed to act as the agent for all, then the income from the venture is taxed as though it were a corporation, even though the legal relationship is that of a partnership or agent.

As a result, many producers apparently will exercise their contractual right to withdraw from unitization and handle their own sales. They feel they will come out better by paying individual taxes only.

However, if a producer withdraws from a unit and sells directly to a pipeline to avoid the double tax, he will fall under FPC regulation. That's evident in an FPC official's statement: "Whenever a producer contracts with an interstate pipeline company, he's subject to direct regulation."

Even so, some producers evidently want to take this course. Apparently they feel that hiring lawyers to struggle with FPC regulations would be cheaper than paying an extra corporate tax of 52%.

FPC has asked the Internal Revenue Service to approve a solution which would allow nonoperating producers to pay only one tax and still be free of federal control. However, FPC officials venture no guess as to whether—or when—the proposal will be approved.



Fuel Oil Reducer Gets Reduced

The collapse of the burner vessel of the new fluid coking unit at Tide Water Associated Oil Co.'s Avon (Calif.) refinery (above) is expetced to delay the completion of the coker until after the end of 1956. The 42,000 b/d coker, a twin of the unit under construction at Tide Water's Delaware City (Del.) refinery, had been building for about four months. The 76-ft. high burner collapsed under hydrostatic testing. The unit had been scheduled to go on stream in August.

What's New / IN THE INDUSTRY

Congress Considers Antipollution Bill

Hearings will start next week on a new water-pollution control bill. The measure would leave primary responsibility to the states, but provides for federal aid and federal regulation under certain conditions.

The measure carries the name of Rep. John A. Blatnik (D., Minn.), chairman of the House Public Works, Rivers & Harbors subcommittee. It is a compromise bill drawn up to overcome the strong opposition that gathered around key features of a bill passed by the Senate last year.

Blatnik believes his bill answers the most serious objection—that under the terms of last year's bill the federal government would play too heavy a role in enforcement. The U.S. Public Health Service, under terms of the new proposal, must hold to a rigid formula of notices and full hearings to states and private industries before using new federal powers to compel abatement of pollution. It is felt these provisions will help prevent premature federal suits against stream polluters.

Though the bill will have some impact on all segments of the oil industry, no concerted petroleum activity is expected for, or against, the measure.

The oil industry has been working on various pollution problems for years. Refiners have had a committee on waste disposal operating a long time. The problem of washing out tankers in offshore waters has been studied, as has bulk station and tank spillage. Producers, too, have minimized salt-water pollution of fresh water bodies by making efforts to return salt water to a compatible strata, or using it for repressuring.

Petroleum chemical, pulp, and other industry groups are among some 40 parties seeking a place at the three-day hearings.

•

Expansion Capital

Two companies last week announced plans for financing major expansion programs.

• Tide Water Associated Oil Co. will offer $100-million of 30-year sinking-fund debentures to the public. The proceeds will be used for various projects, including construction of the company's Delaware Flying A refinery, and for acquisition and development of additional crude oil production. The company also plans expansion and improvement of its refining and transportation facilities.

• Atlantic Refining Co. will ask its stockholders to increase its authorized common shares to 15-million from 12½-million, and to increase the debt limit to $225-million from $150-million. Atlantic is seeking to acquire the assets of the Houston Oil Co. and, in addition, is pressing an active campaign to increase its reserves by exploration, development, and other purchases.

•

Freight Rates Rise

Freight rates were boosted 6% this week. The Interstate Commerce Commission approved the increase for railroads, certain water carriers, and freight forwarders, effective Mar. 7. The railroads had been seeking a 7% hike.

General commodities, including bulk oil shipments, will get the straight 6% increase. Coal, agricultural, and other specified commodities won some concessions. Under the order, line-haul rates on anthracite coal, bituminous coal (except lignite), and coke, in carloads, can be increased 6%, subject to a maximum of 15¢ per net ton. Lignite coal and lignite coal briquets can be increased 3%, with a maximum of 7¢ per net ton allowed.

•

Natural gas companies must report to the Federal Power Commission any intention to use fast tax writeoffs, according to a ruling issued last week by examiner Edward B. Marsh. Marsh said the gas companies also will be required to maintain subsidiary accounts to permit identification of any projects covered by rapid depreciation. His decision resulted from a request for a clarifying order made by nine Columbia Gas System subsidiaries. Unless appealed in 10 days, the order will become final in 30 days.

•

An Arkansas representative has introduced a bill that would treat sales of oil payments as straight income for tax purposes. Representative Wilbur D. Mills says his measure will plug what he terms a "large loophole" in the income tax laws. Such payments presently are considered as capital gains.

Mills' bill describes oil payments as "right to income from a royalty or operating interest for a limited time or amount." He says the bill will not change tax treatment of royalty or operating interests. Recent court decisions, Mills adds, have held that oil and other mineral payments are property interests similar to royalty and operating interests.

•

Congressional spokesmen are discounting the seriousness of trucker opposition to the special tax added to the Boggs bill. The tax, which would affect about 700,000 trucks, calls for a $1.50 annual fee on trucks for each 1,000 lb. over 26,000 lb.

John V. Lawrence, managing director of the American Trucking Assns., Inc., charged last week that "the fee amounts to a big and extremely burdensome overcharge against the larger trucks." The fee provision was included in last-minute changes made by the House Ways & Means Committee to provide additional financing for the highway program.

Some of the bill's congressional backers say truckers feared a last-minute move to increase excise taxes on large tires and were relieved to get only a registration fee. The bill now goes to the House Public Works Committee, where it will be joined with the authorization measure sponsored by Rep. George Fallon (D., Md.).

•

Truckers and the Justice Dept. will continue their fight against Southern Pacific's southwest pipeline regardless of the outcome of lower-court suits.

Truckers have been challenging SP's products pipeline on the ground that SP has made an improper use of government-granted right-of-way. But the Justice Dept. has postponed action on the complaint pending outcome of an earlier government suit against the Union Pacific R.R. for exploitation of mineral rights on similar lands.

The U.S. 10th Circuit Court of Appeals upheld UP's rights to minerals last week (PW—Mar.2'56,p13). But the Justice Dept. feels that the setback was based on "technical" grounds, and that it still has a strong case for appeal.

Tank truckers had sought suspension of SP pipeline tariffs, but were turned down by the Interstate Commerce Commission. The line runs from Los Angeles and El Paso to Phoenix.

to all NATURAL GASOLINE MEN

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Walworth Company
Wedgeplug Valve Co., Inc.
Weil Equipment Division of Chiksan Co.
Westcott & Greis, Inc.
Western Chemical Co., of K.C. Mo.
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Wilson Supply Company
Woodbank Machinery Co.
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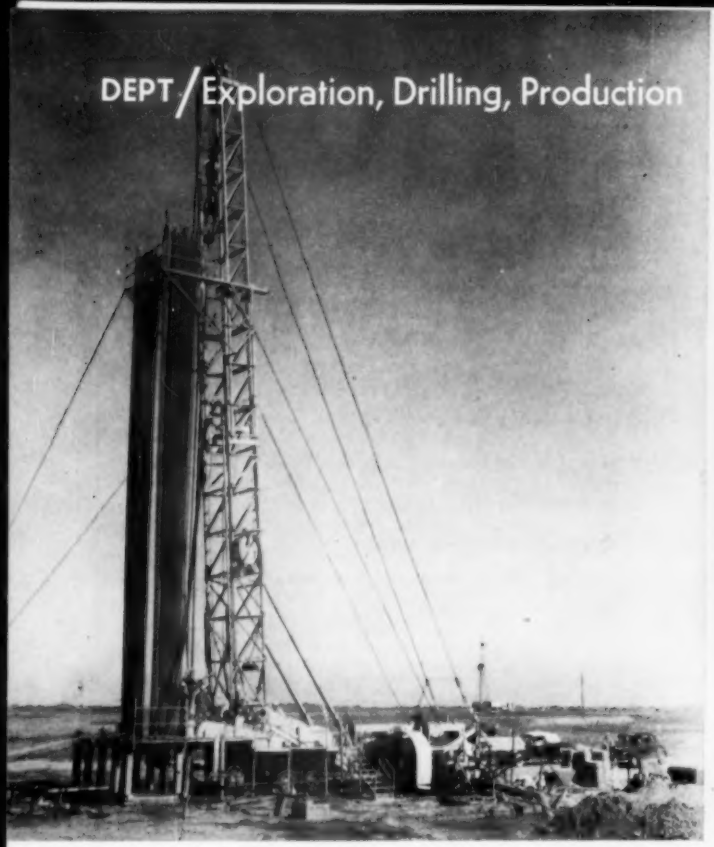
Worthington Corporation
Wright Chemical Corporation
Wyatt Metal and Boiler Works
Young Sales Corporation
John Zink Burner Company



SPEEDY MOVES and fast drilling are popularizing rigs like these. They have their limitations, but there's no doubt that . . .

Slim Holes Puncture Inflated Costs

Tide Water Associated Oil Co. was putting the final touches this week on a 17-well slim hole drilling program in South Texas. It's part of a cross-country trend. Last year there were twice as many slim holes drilled as in 1954. This year the increase will be greater.

• In the Dakotas, about 32 of the small holes have been drilled in the past six months, with perhaps 15 more scheduled.

• In marginal areas of northeast Texas and North Louisiana, there is increasing interest in the technique as the answer to high costs for gaining limited production. In the same category is the fringe area of the Hugoton gas field of Kansas, where Panhandle Eastern Pipeline Co. is giving serious thought to an extensive slim hole program.

• In California's Sacramento and San Joaquin valleys, slim hole contractors are looking for a much better year.

• In Colorado's Denver Julesburg Basin, the technique is becoming solidly established. One company—British-American Oil Producing—has completed 100 slim holes in this area since December, 1953. British-American kept one contract rig busy from December, 1953, to July, 1954; another from May, 1954, to June, 1955, and another from October, 1955, to January of this year.

• In South America and offshore California, operators are turning to stratigraphic slim hole drilling as an economical means of evaluating structures.

• Some majors on the Gulf Coast are doubling their slim hole programs. Humble Oil & Refining Co., Gulf Oil Corp., and Shell Oil Co. are among the many strong believers in slim hole possibilities.

• The erratic geology of the Illinois Basin will make this a testing ground for slim holes.

Economy of the technique is a major advantage stressed everywhere.

Tide Water production men, for instance, sharpened their pencils and figured that their slim hole program can be completed for about one-third the cost of conventional drilling.

From California comes the estimate of savings ranging from 15% to 25%.

A contract rig in the Denver Julesburg Basin drilled 30 slim holes in 11 months for British-American at the approximate cost of 22 full-size holes.

This company has been paying $2.10 per ft. for wells to 5,400 ft. and $2.25 per ft. for deeper holes. On regulation-size wells in the eastern part of the basin the price is $2.65 per ft. if the rig is moved in and $2.50 per ft. if the rig can be skidded.

A major in North Dakota anticipates a saving of about $50,000 on 20 slim holes.

The growing need for economy leaves operators in some areas no practical alternative to slim hole drilling.

An official at Humble, which was a slim hole pioneer, says economics are steadily forcing the widespread trend in favor of the technique.

And at a recent AIME meeting, T. A. Huber, assistant chief petroleum engineer for Humble, cited this case for slim hole drilling: In 1954, the average well cost for some Texas operators was about five times as high as in 1936, but the price per barrel of oil was only 2½ times as much. This means that gross oil revenue in 1954 was only 50% of the 1936 income.

With well cost offering the best opportunity for future economy, Huber said that small holes are "hold-

ing the spotlight as the best bet for reducing well investment."

The slim hole rig starts putting money in the bank on its first moving day. It's the fast move that racks up real savings.

Pumps are smaller and engine requirements lower, so the contractor can use portable masts and smaller derricks. Moreover, the drill site and mud pits need not be so large, so preparing locations is quicker, cheaper.

In California, one slim hole rig made a 240-mi. move, plus drilling 600 ft. of hole, between 6 A.M. of one day and 8 A.M. of the next. This contractor consistently saves 20% to 30% on moving costs, compared with conventional rigs.

A Gulf Coast contractor customarily moves on location in the morning and spuds in by evening.

An engineer with a major company says: "With a conventional, 10,000-ft. rig, the average number of loads for a move is around 20. For a slim hole rig capable of drilling to 12,000 ft., it could be as low as 7 loads."

There are big savings, too, in the use of lesser amounts of mud and cement, and smaller casing.

British-American saves $500 to $600 per well on mud, $700 on surface pipe, and 24¢ to 29¢ per foot on casing.

One major company engineer calls casing cost on the Gulf Coast "a terrible item of expense." He cites these comparisons: On a conventional 8¾-in., 9,000-ft. well, there was a completion cost of $80,000, of which $23,000 went for casing alone. This consisted of 62 ft. of 16-in., 1,800 ft. of 9⅝-in., and the remainder of 5½-in. (If 7-in. had been used, the cost would have been considerably more.)

At the same location, with a 6¾-in. slim hole, the casing cost would have been about $17,000. This would have required 60 ft. of 9⅝-in., 1,800 ft. of 7⅝-in., and the remainder of 4½-in.

To some, anything smaller than 8½-in. or 8¾-in. bit diameter is a slim hole. Generally, however, anything smaller than 7-in. is considered a slim hole. Some experts carry the definition a step further and class anything under 6⅝-in. as "ultra slim hole."

Depth, of course, plays a part in the size of the hole, with bits as small as 4⅛-in. used in extremely deep projects. But again, generally speaking, a slim hole can be defined as one in which a relatively large part of the hole is of the smaller size.

But the disadvantages in slim hole drilling still outweigh advantages in the minds of many. Bit limitations are one big drawback.

The teeth of the smaller bits are shorter and therefore take less bite of the formation. In hard formations, the limited tooth area is blamed for shorter bit life. For instance, two California drilling contractors who operate very successfully in soft formations won't risk the slim hole technique in harder formations.

The bit manufacturers are well aware of the problems and research is now under way to lick it. New alloy materials are being tested, and sealed-lubrication bearings are being studied.

"But," one manufacturer says, "You can't build the same cutting structure on a little bit that you can on a big one." But, he adds, "If the small bit were to make the same number of passes at the formation, by increasing rotating speed, in order to get the same comparative feet per minute of penetration, it would compare favorably with a larger bit."

He believes that drill strings could be run safely at 500 rpm. to 600 rpm. instead of the maximum of 250 rpm. now being employed.

It is indicative of the many points of disagreement on the slim hole technique that this suggestion gets a shake of the head from a slim hole rig manufacturer. He points to the need for maintaining satisfactory bottom hole cleaning conditions and mentions the strain on rotary tables and kellys at such high rotative speeds.

The two men agree, however, that contractors applying proper techniques are doing well with slim hole drilling. The bit manufacturer points to an East Texas contractor who is operating six big rigs and four slim hole units. "His slim hole rigs are the only ones making him any money these days," he says.

Some oil men object to the smaller cores obtained in slim holes.

Since the larger cores are better for evaluation purposes, this factor has an inhibiting effect in such areas as the Bluell field of the Williston Basin. Operators there consider the area erratic and its quality unknown, so they depend on coring to a much greater extent.

There are strong doubts as to the efficiency of the technique for producing wells.

Many operators believe there will be a definite limitation on production, particularly if the well is of the water-drive variety. A slim hole enthusiast counters with the statement that a major oil company has estimated that 85% of all Texas wells could produce their allowables through 1½-in. tubing. It is also argued that such an arrangement is more favorable than when 2-in. or 2½-in. tubing is used.

A lot of operators consider slim hole drilling an easy way to get into trouble.

Because the smaller drill string can't stand as much torque, the danger of "twistoffs" is increased.

The added risks have deterred contractors from using slim hole rigs in some areas.

Frequently, the contractor must assume the added risks involved without being allowed added profit opportunities. This has resulted in some contractors discontinuing slim hole drilling.

Another braking influence is the cost of replacing present equipment. Conversion, too, is costly.

On the latter point, Philip L. McLaughlin, Director of Drilling Research for Cardwell Mfg. Co., of Wichita, Kan., maker of slim hole equipment, has this to say: "The drilling of a small hole with a big rig can't be classified as good slim hole practice. There must be a proper balance between hole size and equipment size before real economies can be realized."

The net result is that, while it is both possible and feasible to complete slim holes as producers, the emphasis will continue on exploratory drilling for some time to come. The Tide Water program is typical.

Tide Water has scheduled 12 wells on a 33,000-acre lease held jointly with Skelly Oil Co. in Live Oak, Duval, and Jim Wells counties, Tex., and five wells on a Pacific Western Oil Corp. tract in the same area. The program is for 93,500 ft. of 6⅛-in. hole, each well being between 4,500 ft. and 5,500 ft. Figuring an average drilling time of 6 to 10 days per well, the program will be completed by midsummer.

Tide Water's problem is to overcome seismographic shortcomings and solve a complicated fault pattern by locating geological and paleontological "markets" that can be used to correct seismic data and permit more accurate underground mapping.

Geophysical work hasn't supplied Tide Water with all the answers it needs in the area. Seismic sound waves travel through some formations faster than through others, and the result is inaccurate seismic readings. Nor has Tide Water been able to map as deeply with the seismograph as it would have liked, again because of the area's sedimentary traits.

No really big structures have been turned up with geophysical work, and Tide Water thinks that the oil, if any,

will probably be found in fault traps. Since it is almost impossible to get between the numerous faults with seismic techniques, Tide Water is forced to rely on exploratory drilling.

Here's the way a company spokesman puts it:

"Ten years ago we were looking for structures of hundreds of feet in relief [uplift] and now we're looking for structures of 50 ft. Well, 50 ft. on a seismograph record is considerably less than a hundredth of a second." And the various corrections we have to make for elevation and low velocity layers bring us pretty close to the edge of our resolving power with a seismograph. We need some crutches."

An exploratory program could have been carried out somewhat differently with conventional holes, of course. But, as one Tide Water official puts it, "An exploratory well only explores about 6 in. of the bottom. You can be a quarter of a mile from finding oil and miss it. You can drill many of these slim holes for what one conventional exploratory well would cost."

A few wells have already been drilled in the area, but not enough to give geological control. So for all practical purposes, it's a wildcat area.

The company does not expect to complete any of the slim holes as producers. If one of them should encounter an oil show, it probably would be plugged, and a conventional well completed nearby.

Some experts feel that slim hole drilling may be on the threshold of a "new concept" in exploratory activity —that ultra slim holes may open up new horizons.

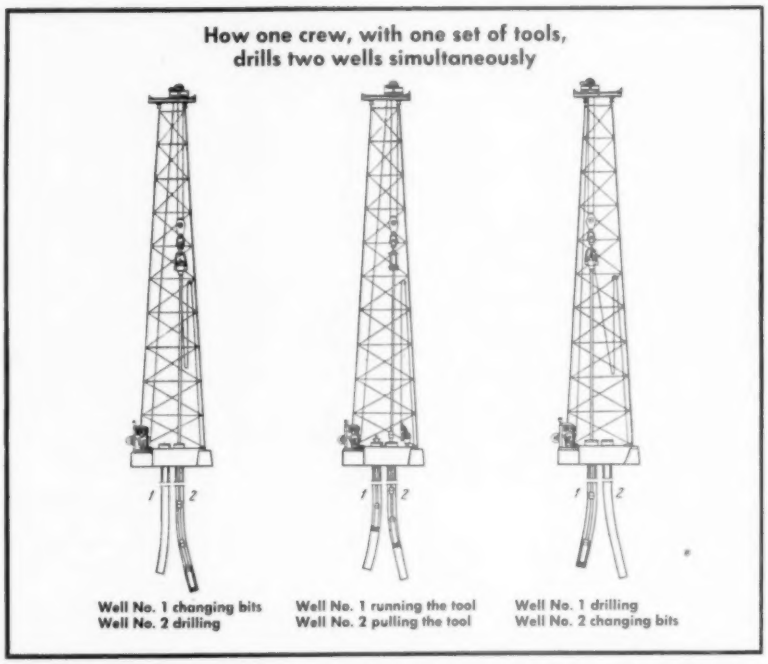
Noting that the industry is waging its exploration for new oil against odds of at least 9 to 1, a slim hole authority for a major company says the "possibilities are terrific."

He points out that capital investment would be about one-fourth the cost of drilling a conventional exploratory hole, and cites comparative figures of $400 per rig per day as against $1,600. (Another industry authority believes a more "realistic" figure would be $500 vs. $800.)

There would be no thought of completing the well. A tubing string would be set, and the well tested by plugging back to potential pay zones.

But this expert readily admits that acceptance of such a program by geologists "will be hard to get. They say it would not give them all the information they want." And it would mean new types of logging equipment and new kinds of testing techniques.

In fact, such an approach would really amount to a major research program.


How one crew, with one set of tools, drills two wells simultaneously
1
2
Well No. 1 changing bits
Well No. 2 drilling
Well No. 1 running the tool
Well No. 2 pulling the tool
Well No. 1 drilling
Well No. 2 changing bits

RUSSIAN EXPERIMENTS with turbodrill include drilling two wells at a time, as shown here. Russian claims of faster drilling with turbo will be tested when . . .

Turbo Challenges Rotary

The turbodrill principle stands this week in the path of history's first head-on collision between the petroleum technologies of the United States and Russia.

J. B. O'Connor, executive vice-president of Dresser Industries, Inc., of Dallas, last week obtained an American license to manufacture the Russian version of the turbodrill (page 10) which he was quoted as saying "is 10 times as fast as our conventional rotary drill . . ."

The Russians will send sample units and four engineers to the United States to assist in putting the device into production. Thus, the Soviet Union is about to offer its first challenge to American drilling supremacy.

Efforts to perfect the turbodrill have been virtually supended in this country after more than 30 years of sporadic effort by the oil industry.

One of the first to attack the problem was Standard Oil Co. of California. C. C. Sharpenberg of that company obtained a turbodrill patent in 1924, and in 1926 one of his models was used in experimental drilling at Elk Hills, Calif. A. O. Smith Co., of Milwaukee, joined the project in 1935, and work continued until World War II. During this period considerable turbodrilling was done in the Midway Sunset field of southern California. There was notable progress during this phase, including the drilling of a 3,000-ft. well.

Work was resumed in 1950, but despite several improvements in the technique, A. O. Smith pulled out. W. R. Postlewaite, of California Standard, who gave a paper on the subject last year before the ASME at New Orleans (PW—Sep.30'55,p14), attributed the Smith exodus to ". . . the protracted delay, when the turbodrill was interrupted during World War II, and the necessity to readjust the design to match present-day rotary drilling rates, and smaller hole diameters."

The state-supported Soviet turbodrill effort also began more than 30 years ago.

In a paper given before the Fourth World Petroleum Congress, at Rome last year, F. A. Trebin claimed that "the Soviet Union was the first country in the world to introduce turbine drilling. This took place in 1925." Trebin claims that in 1954 about 65% of Russia's drilling was by this method. In view of recent advances claimed, a current Russian estimate presumably would be much higher.

The American experiments were suspended with a "few mechanical problems" unsolved. The Russians

persevered, and now say they can cut 10 times more hole than with a rotary.

In Postlewaite's report to the industry last year, he said: "The practicability of the basic mud turbine design has been confirmed by field tests, and few mechanical problems remain to complete this development as a drill."

Among some of the remaining problems he mentioned were bearings, bit wear, and speed indicator. He also noted evidence that the turbodrill tends to cut a crooked hole.

However, since emphasis in the experiment was placed elsewhere, no effort was made to prevent this by weighting with a drill collar below the turbine.

Trebin's report cites many examples of comparative performance. These might be more impressive if there were means of comparing Russian and American achievements by any method. Unknown variants are manpower, machinery, and formations.

In one hard-rock area, he said, the rotary penetrated 6½ ft. per hour and the turbodrill 72 ft. per hour.

One of his best claims for the turbodrill was about 3,280 ft. in 12 hours—or 273 ft. per hour. Rencently, in California, a General Petroleum Corp. rotary rig drilled 2,305 ft. in eight hours, or 288 ft. per hour.

American expert opinion of the Russians' claims varied this week from criticism to qualified acceptance.

One outspoken critic is a major company top executive with long experience in international oil fields. He recalls having roughnecked at the time and place of California Standard's early experiments. Since then he has followed turbodrill efforts in his own company and others. He says: "Give me a good American crew and a good American rotary rig and I'll dig a ring around the Russian turbodrill—or anybody else's."

But an engineer with another major concedes the Russians may have made considerable progress with the turbodrill because "they have been working on it longer and the government has been backing it."

And the chief engineer of still another major believes the Russians can almost do what they say they can. "The turbodrill principle is good," he says. "If you put the same weight on the bit, and then increase the speed of the bit, you'll get faster penetration—though this isn't the whole story, of course. I believe the Russians can drill hole faster than we can—though not 10 times faster."

Penetration rates aside, many American experts agree with the Russians on the economies inherent in the turbodrill principle.

In his paper, Postlewaite cited an estimate that drilling costs with a turbo would be $6,000 to $10,000 less per well, assuming equal penetration rates. This calculation was based on the American turbo's status at the time of World War II.

A major factor in these figures was drill pipe, which cost California standard $300,400 per year during the period 1936-40, compared with $397,000 per year for all other drilling equipment combined. Since the pipe does not rotate in turbodrilling, lighter material could be used, and with less wear.

The Russians put considerable emphasis on labor savings achieved. By drilling two wells simultaneously from a single platform, they say, there is no necessity for stacking pipe or for use of a derrickman.

What's New / IN PRODUCTION

More Contract Services

Contract services in oil and gas fields increased eight-fold in the 15-year period from 1939 to 1954, according to a U. S. Census Bureau report taken from its census of mineral industries.

The study is broken down into three types of firms doing contract work: (1) those primarily engaged in drilling wells; (2) those that build, repair, and dismantle rigs; and (3) those performing other services, such as geophysical exploration, well surveying, cementing, perforating, and acidizing.

The number of contracting companies rose from 1,619 in 1939 to 5,325 in 1954, while total receipts climbed from $187,539,000 to $1,565,121,000. More than half the contracting firms were engaged in drilling, and their receipts accounted for almost three-fifths of the total.

Drilling contractors accounted for 43,000 wells in 1954, including 26,000 oil wells, 3,000 gas wells, 1,000 service wells, and 13,000 dry holes. Total footage drilled was 167-million ft. at a cost to the contractors of $683-million.

Contractors operated in 34 states, but activity in Texas accounted for 87% of their total receipts.

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Activity Up in Rockies

Rocky Mountain operations are running ahead of the first two months of 1955.

At the end of February, operators in the Rockies had completed 667 wells, compared with 560 for the same period of 1955. A total of 260 wildcats completed in 1956 compares with 192 last year. Colorado and Wyoming activity is slightly down from the first two months of 1955. Substantial gains have been noted in western Nebraska, Montana, North Dakota, Utah, and northern New Mexico.

These figures give weight to a prediction by Frank Neighbor, new president of the Rocky Mountain Section, AAPG, that exploration and drilling in the area will increase considerably.

Neighbor thinks the most concentrated effort will be in the Paradox Basin, where interest was stimulated by a recent major discovery by the Texas Co. He is also confident of high activity in western Nebraska, northwestern Colorado, and eastern Utah.

Neighbor is district geologist at Salt Lake City for Sun Oil Co. He formerly was with Sinclair Oil & Gas Co.

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New Mud In Deep Test

A new mud, designed to resist solidification in extremely high temperatures was being used as the critical testing stage neared in the Plaquemines Parish, La., record depth test, jointly owned by Richardson & Bass, John W. Mecom, and Freeport Oil Co. The mud, developed by Magnolia Petroleum Co., is calcium-based with an ingredient called a surfactant.

After running 5-in. liner to surface, plans were to test the interval at 21,523-623 ft. through 2⅜-in. tubing.

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Trio Drilling Co., of Dallas, has spudded in on a gas-drilled test in the southwestern portion of Wise County, Tex. The project is considered a significant technological experiment for the area.

The well is Christie, Mitchell & Mitchell's W. W. Hollingsworth 2, in the Daly field. The well will be

drilled through the base of the Caddo lime by conventional means. Gas from a nearby well will be used to drill from 4,100 ft. to completion in the Bend conglomerate at about 5,700 ft.

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The Alberta government is offering for sale Mar. 29 more than 500,000 acres in the area of Union Oil Co. of California's major strike at Red Earth Creek. The acreage is divided into eight spreads east and northeast of the Granite Wash find, which is 80 mi. east-northeast of Peace River. Two other tracts, 100 mi. south of the discovery, will also be offered.

Union's first follow-up to the strike is expected to be finaled before the sale date, as is an exploratory test being drilled by Great Plains Development Co. of Canada and Triad Oil Co.

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British-American Oil Producing Co. has been granted a 150 b/d discovery allowable at its deepest producer in Oklahoma (PW—Feb.24'56, p22). The well was completed at 15,250-310 ft., below shallow pays in the Knox field, Grady County.

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Richfield Oil Corp. has found new oil at a test that started out to be an injection well and wound up as a discovery. After drilling to 4,359 ft. in the South Cuyama (Calif.) field, Richfield found that unpredictable faulting precluded an injection well. The hole was plugged back to 2,728 ft. and yielded 84 b/d from the Bittercreek sand, a new producing horizon for the field. The pay is just below the Santa Margarita sand, which gave Cuyama Valley its first commercial well eight years ago in the Russell Ranch field.

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Phillips Petroleum Co. has lost another round in its campaign to block a 1955 legislative act requiring the company to sell gas for irrigation purposes. The state Supreme Court denied the company's application for the court to assume original jurisdiction. The bill was passed after a long fight by farmers in the Guymon-Hugoton field of the Oklahoma Panhandle. Phillips argues the law is unconstitutional.

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Firefighters from M. M. Kinley & Co., of Houston, blew out the flames at a gas well in Hidalgo County, Tex., which had run wild for 65 hours. The fire destroyed a rig owned by Longhorn Drilling Co. The well, producing from two deep high-pressure sands in the San Salvador field, blew out as it was being completed.

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Delhi-Taylor Oil Corp., of Dallas, is continuing negotiations with the Navajo Indians for a lease on about a third of their reservation in the Four Corners area of New Mexico, Arizona, Utah, and Colorado.

The area under discussion will exclude acreage now under lease and will generally include only tribal lands on which there has been little or no previous activity, according to Paul Jones, chairman of the Navajo Tribal Council.

Jones says the proposed Delhi-Taylor contract will not "freeze out" present operators.

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Drilling Highlights

Colorado—Phillips Petroleum Co. has a Weber sand discovery in its 39,000-acre block in Rio Blanco County, 9 mi. southeast of the Rangely field. The discovery produced at the rate of 237 bbl. of 42.5-gravity oil daily after being fractured at 7,500-627 ft. Phillips is commencing a second well ½ mi. north.

Western Canada—Southern Production Co., Inc., has an indicated dual-zone oil discovery at a wildcat in the Pembina River area, about 100 mi. southwest of Edmonton. Encouraging shows were registered in the Belly River and Cardium sand horizons.

This apparent discovery is about 28 mi. west of the Pembina field.

California—Richfield Oil Corp. has abandoned a well at Goleta Point on the Santa Barbara College campus. The test was slant-drilled at 4,631 ft. last October and has been redrilled four times since then.

Wyoming—Shell Oil Co. recovered 1,620 ft. of oil on two-hour drillstem test at 12,198-265 ft. in a wildcat in the west Powder River Basin, Johnson County. The well is in the Crazy Woman area, 15 mi. north of Stanolind Oil & Gas Co.'s 1951 discovery at North Fork field, which produced from the Tensleep (Pennsylvanian) at 6,500 ft. The current test is scheduled to the basal Pennsylvanian at about 13,000 ft.

There has been no previous drilling within several miles of the Shell wildcat. Nearest previous test was a dry hole 3 mi. northeast, which went only to the upper Cretaceous.

North Dakota—Sohio Petroleum Co. recovered oil with substantial quantities of salt water at a wildcat 1 mi. south of the Canadian border in Renville County. The test is 3 mi. northwest of the Bluell field, opened by Sohio in 1955.

On a 2½-hour test at 4,657-68 ft., recovery was 480 ft. of oil and 3,727 ft. of salt water.

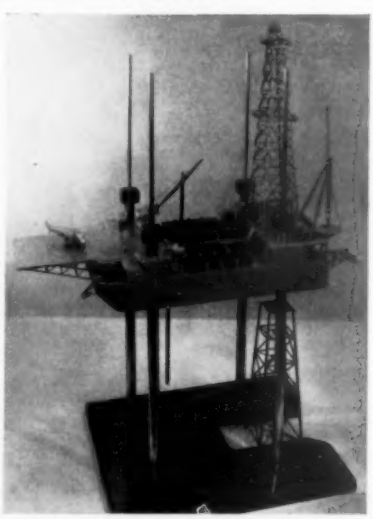
To Drill in 140 ft. of Water

A mobile platform capable of drilling in 140 ft. of water is being built for C. G. Glasscock Drilling Co., of Corpus Christi, by the Shipbuilding Division of Bethlehem Steel Corp. at Beaumont.

The unit, said to be the world's largest, will be completed in January at a cost of about $6¾-million. The platform will have a movable derrick which will allow the drilling of six wells at one location.

The rig will weigh 14-million lb. when equipped, and will require less than 24 hours to set up at location. Glasscock's "Mr. Gus" weighs only 8-million lb. when ready for drilling.

The new unit's bottom hull will be 200 ft. long and 180 ft. wide. The upper hull will be 258 ft. long, including anchor supports and landing space for helicopters.



U.S. INDEPENDENTS sign with Italian firm for joint exploration in Italy. For MOFAG, left to right: Dr. Paul Gmur and D. Mario Braschi, attorneys; John F. Tolleson, director, and Jack H. Heathman, board chairman. For Snia Viscosa: Prof. Luigi Manfredini (right), vice-president, and Dr. Marinotti (seated), president.

Heathman to Drill in Italy

In the face of almost unanimous opposition from U.S. oil companies to any further commitments in Italy until the terms of the new oil law are settled, two U.S. independent oil men are ready to spud in a well this week in the Abruzzi region of central Italy.

They will be the first American interests to drill on mainland Italy since a Gulf affiliate discovered oil in the Abruzzi over a year ago—only to shut down until Italy sets up an oil law that will guarantee development rights. They'll be spudding in their first Italian well, jointly with an Italian company, in the face of oil industry furor over the government's projected oil law. At the moment, the possible revision of the controversial 60-40 profit split clause to 50-50 is still far from set (PW—Mar.2'56,p29).

The two are Jack H. Heathman, of Wichita, and A. A. Seeligson, Jr., of San Antonio. They are co-owners of Heathman-Seeligson Drilling Co., of Wichita, with oil production in Kansas. Last year the two organized a new company in Switzerland, called Molasse Erdol-Forderungs AG (MOFAG) to get into exploration in both Switzerland and Italy. They are owners of this firm, and also act as agents for other independent U.S. oil interests.

Heathman is chairman of the board of MOFAG. Director and geologist is John F. Tolleson, of Denver, who is now based at the principal offices in Zurich. The company will be represented in Italy by Edward W. Koester, Wichita geologist, independent operator, and 1954 president of the American Assn. of Petroleum Geologists; and by James K. Ellis, of San Antonio. Both men are now enroute to Rome.

The company's interest in 500,000 acres near the Adriatic coast was acquired under a 50-50 joint exploration agreement with Snia Viscosa Corp., a leading Italian industrial concern. The agreement, though newly disclosed, was signed in December in Milan with Dr. Marinotti, president, and Prof. Luigi Manfredini, vice-president, of Snia Viscosa. Representing MOFAG were Heathman and Tolleson, together with Dr. Paul Gmur, their Swiss attorney, and Dr. Mario Braschi, their Italian attorney.

The exploration concessions cover two areas, Sangro and Foggia. They were acquired by Snia Viscosa in 1954, before the Petrosud (Gulf-Montecatini) discovery in January, 1955—after which no new concessions were granted, pending passage of the new oil law. Sangro covers 125,000 acres about 15 mi. south of the Petrosud discovery, and 7½ mi. west of subsequent oil finds made last fall by one of the companies of the government's Ente Nazionale Idrocarburi. The 375,000-acre Foggia permit lies further south, surrounding the town of Foggia, about 60-mi. from the Petrosud wells.

The well to be spudded in on the Sangro concession this week is the first of two that must be drilled in order to retain the concessions. The Italian company's three-year exploration rights have one more year to run, and the terms of its grant require that drilling be started by the end of the second year. The Sangro test is scheduled for 5,000 ft. This is well below the first of two horizons at which both the Gulf and ENI companies found oil in this region (PW—Oct.21'55, p29). The second well will be drilled at Foggia in May, and will be carried to 7,000 ft. A German contract rig is being used.

And what if the group strikes oil? "We will be in exactly the same boat as Gulf," Seeligson says. "We're taking a chance that the new oil law will level out to the general 50-50 deal. If we had not believed that Italy would go along with the world pattern, we would not have gone into the venture in the first place."

The arrangements with Snia Viscosa were entered into long before there was any indication that Italy would draft a 60-40 clause into the projected oil law, Seeligson told PETROLEUM WEEK. MOFAG started discussions with Snia Viscosa in June, 1955, and the following month started sharing costs of seismic work on the Italian firm's two concessions. Up to that point, Snia Viscosa had done only some preliminary work on the acreage, amounting to four or five crew-months.

And at this stage, MOFAG has already invested more in the seismic work than it will put out for drilling the two planned wells.

"We've worked with the Italians before," Seeligson adds. "In 1950 we did 200,000 ft. of contract drilling for AGIP (one of the ENI companies) through Universal Drilling Co. We have every hope of getting a fair deal on this new operation."

At this point, meanwhile, the word from Rome is that the Parliamentary committee studying the projected oil law is now discussing another profit-taxing system, based on scaled royalties.

This suggestion was submitted by the Minister of Commerce & Industry after a majority of the study committee had agreed that the 60-40 profit clause won't work. The scale of royalties would differentiate between flowing wells and those on

pump, and is divided into three parts. For production up to 540 tons monthly, royalty would be 16.2%; from 540 to 1,240 tons, 20%; from 1,240 to 7,220 tons, 28%. For wells on pump, the percentages would be 12.5%, 15%, and 21%.

Thus far, the committee has agreed in principle that such royalties should not bring an oil company's total liability to more than 60% when other taxes are included.

Like other American independents who have gone abroad, Seeligson and Heathman were drawn to their new venture in hopes of finding low-cost oil. "Europe is one of the spots an independent can afford," Seeligson says. "Costs of finding oil in the U. S. have gone up tremendously, and furthermore, most of the large reserves were found years ago. Europe is developed country where an independent doesn't face the costs he would have in other areas, like North Africa, for example. Further, he doesn't have to develop his market; it's already there—and expanding."

Currently MOFAG is also doing seismic work on two Swiss concessions, and is negotiating for further acreage. One of its areas is in the southwestern canton of Geneva, bordering France; the other is in Ticino, in the southeast, bordering Italy.

Brazil Oil Planner

Brazil's new oil chief, Petrobras president Col. Janary Nunes, is back from his first tour of the oil unit's operations (PW—Feb.17'56,p37) with the word that he'll draw up a 5-year oil development program to present to President Kubitschek by June. "Other than the Bahia fields, now producing 6,000 b/d," he said, "our greatest hope at the moment lies in the oil possibilities of the Amazon region."

Egypt to Study Suez Canal Needs

Egypt plans to ask oil companies how much tanker capacity they'll need at the Suez Canal after 1968, when Egypt takes over ownership of the waterway from La Compagnie Universelle du Canal Maritime de Suez (PW—Jan.27'56,p30).

Burhan Sayeed, the Egyptian government's delegate to the Suez Canal company, told PETROLEUM WEEK in Cairo that all merchant marine firms, tanker fleet owners, and oil interests that use the canal extensively will be contacted and asked to submit recommendations based on their projected needs in 1968. Egyptian authorities, he said, will be particularly interested to know the estimated tonnage, size, and draft of ships that will be in use at that time. Special consideration will be given to tankers, he added, inasmuch as tanker traffic makes up nearly two-thirds of the total traffic through the canal and has shown a higher postwar rate of increase than other commercial shipping.

A special department has already been set up in the Revolutionary Command Council headquarters, under direct control of Premier Gamal Abdel Nasser, to take the necessary steps "so that Egypt will not be caught unaware" when the canal company's 99-year concession expires on Nov. 16, 1968. "Measures should be adopted now," Nasser says, "in order to avoid the mistakes of the past." Nasser recently commented that transfer of ownership, management, and operation of the canal could be carried out smoothly through "friendly relations" between the Egyptian government and the canal company.

Currently a program is under way on inspection and stocktaking of all equipment, machinery, and craft used by the canal company. Sayeed says this is being carried out to determine what equipment will still be in use after 1968, and what replacements will be necessary.

A detailed program for technical improvements to be made after 1968 has not yet been drawn up. As a sovereign state, Egypt realizes her full responsibility toward international shipping, Sayeed says, and will make every effort to see that the canal is turned over with up-to-date installations and in perfect order.

Egypt expects the Suez Canal company to complete its eighth improvement plan in 1962. This is being executed in two stages, and involves digging of two bypasses, and widening and deepening of the waterway.

Egypt may work out further improvement plans with the company once the current program is completed, Sayeed says—particularly if the recommendations from international users of the canal point to the need for such work. The official adds that Egypt hopes the company will continue investing in large-scale expansion plans despite the fact it is scheduled to relinquish the canal in 12 years.

Argentina Asks Pipeline Bids

This week Argentina's new government is making its first bid for foreign participation in its projected oil development program. International tenders will be invited for construction of a 1,000-mi. crude oil pipeline from the yet-undeveloped Madrejones field in the northern province of Salta, near Bolivia, to Buenos Aires.

The announcement came last week, shortly after the Minister of Industry had reiterated the government's intention to keep oil development in the hands of Yacimientos Petroliferos Fiscales, its own oil unit.

The move follows a disclosure that foreign companies have submitted no less than 36 proposals for oil development. No details were given on the nature of these offers to the government. However, the Minister of Industry had said that if foreign interests were to have a part in plans to step up oil development, their participation would be sought by international tender.

The disclosure was made in an announcement of the conclusion of a new survey of petroleum production and possibilities. The study was carried out by a technical expert whose services were specially contracted for in December by the United Nations, at Argentina's request. The Minister of Industry said the government is now confident it will be possible to double present Argentine production of about 90,000 b/d within five years. This, he added, would eliminate some $175-million annually in oil imports.

Statistics compiled in Argentina show that total oil imports jumped to about 146,000 b/d (7.3-million tons) in 1955, from 126,000 b/d (6.3-million tons) in 1954.

The new study confirms the oil outlook presented in an economic report submitted earlier by economic adviser Dr. Raul Prebisch, who also indicated Argentina could become self sufficient in oil if it had the equipment

to step up production and build pipelines from existing oilfields (PW—Jan.27'56,p32). The program suggested by Prebisch would involve expenditure of $200-million for import of materials, plus additional local investment of 3-billion Argentine pesos.

Technical details for the suggested development program were virtually complete, the industry minister had said, although "financial and political aspects" still remained to be resolved.

What's New / AROUND THE WORLD

Arab League Moves Ahead On New Oil Plan

Next week the Arab League Council meets in Cairo to take action on proposals to set up a permanent oil bureau to coordinate oil policies of member states. Two reports will be examined by the council, the highest body of the League. The first was drafted by the Petroleum Experts' Committee at its November meetings in Cairo (PW—Jan.6'56,p38) and subsequently submitted to the Economic Council, which met on Jan. 21.

The second report consists of recommendations drawn up by the Economic Council and the governments of member states. According to a Middle East government official, the report strongly recommends establishment of a Permanent Arab Oil Bureau, to be entrusted with the drafting and implementing of a coordinated oil policy. This policy would include: maintaining a strong economic blockade against Israel; production and export of oil; posted prices of oil; marketing of the countries' own share of oil production in world markets; and collecting information on activities of oil companies operating in the Arab countries.

If the League Council approves the recommendations, the official says, the Permanent Arab Oil Bureau will be established and legalized by each member state in the League.

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New Oil Grants Due Soon

EGYPT—A series of agreements with international oil companies, both major and independent, will follow in the wake of Egypt's new mining law. This was announced in Cairo last week by Dr. Mahmoud Abu Zeid, director of Egypt's Fuel Dept. The long-awaited draft of the new mines and quarries law, he said, is now ready (PW—Dec.23'55,p26). All it needs in order to become law is discussion and approval by the Council of Ministers. This approval is expected this week.

Dr. Abu Zeid gave a general outline of the draft to a meeting of mining engineers, but declined to give the full text before its approval by the cabinet. He said the new draft separates terms relating to mines and quarries from those referring to petroleum exploration. Little change has been made in the terms relating to petroleum.

Of greatest interest to oil companies is an amendment that will speed up granting of oil concessions. This amends Article 69 of the 1953 mining law and authorizes the Minister of Commerce & Industry, on the recommendation of the Fuel Dept., to grant exploration licenses and development contracts directly, without going through the long and tedious process of referring these first to the State Council, then to the Council of Ministers.

Another point of interest to the petroleum industry, as well as other mineral prospectors, is that Egypt's Companies Law of 1954 will also be applied to oil and mining concerns operating in the country. Under this law, 75% of the company's personnel must be Egyptians, and total wages and salaries of the Egyptian employees cannot be less than 65% of the combined payroll.

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Mecom Deal Set

HONDURAS—Houston oil man John W. Mecom is set to start an intensive drilling program in Honduras, the latest of the Caribbean oil concessions he has acquired at a rapid clip in the past couple of months (PW—Feb.24'56,p34). Last week Mecom closed the deal under which he acquires oil rights on almost 50-million acres of the Central American republic's northern coastline from Compania Petrolera Hondurena, S.A. It includes 14-million acres onshore and the balance offshore.

No details were released on the price paid for the concession, on which Ernest Cockrell, Jr., of Houston, will be associated with Mecom. The Honduras company, which originally acquired a 20-year concession in 1954, retains 15% of its original acreage. This company was formed by a number of Honduras business men, and a group of Texans including David C. McCord and O. R. Seagraves, of Dallas, and the late John Sullivan, of San Antonio. The concession grant provided for automatic development rights, with the company retaining 75% of net profits.

Compania Petrolera Hondurena is currently drilling below 1,800 ft. on its first wildcat, at the eastern end of the Honduras coastline. The well, scheduled for drilling to 4,500 ft., was spudded in on Jan. 25, just ahead of the Feb. 3 deadline required to validate the original concession agreement.

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Esso Offer Studied

SYRIA—The government this week is turning an interested ear to a Jersey Standard affiliate's proposal to build its own refinery in Syria—at its own expense. Last week H. W. Howze, president of Esso Standard (Near East), Inc., told Premier Sayed Said Ghazzi that his company is prepared to set up a 10,000 b/d plant to meet Syrian requirements. The offer came just as the government was working on specifications for construction of its own 15,000 b/d plant, for which it already has a number of preliminary international bids (PW—Mar.2'56, p29). It was followed by a new report that Syria might accept a $6-million Czech offer.

Premier Ghazzi told Howze that the offer would be given serious consideration and asked him to meet government representatives to discuss the offer in greater detail.

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Saudis Embargo Goa?

SAUDI ARABIA—An unidentified official Saudi source says the government has embargoed oil shipments from its ports to the Portuguese possession of Goa, now claimed by India. According to this official, the decision was recently communicated to India. It was made, following King Saud's state visit to India late last year, as a gesture of friendship and in support of India's claims over the tiny territory on its west coast.

The official said the government had been satisfied that no oil whatsoever has been sold either to the Portuguese authorities in Goa, or to the government of Portugal.

The Year Advertising Helped

IN 1954 we had a business recession in the United States. Sales fell about 4% during the year. If management had followed the historic pattern of business ups and downs, advertising volume would have fallen much further.

But in 1954 the volume of advertising did not fall. It increased over 5%. Every effort was made to stimulate sales when sales were needed to sustain prosperity.

This was something entirely new under the sun. It had a powerful influence in making the recession of 1953-54 one of the mildest on record. It helped greatly to speed business on to the record-breaking levels it has attained today.

There are several reasons why America's business management attacked this decline in sales with more advertising. One of them grew out of the greatly strengthened position of the American consuming market. Consumers' income after taxes has been rising an average of over $10 billion a year since 1946, and this rising income is more widely distributed than ever before. Furthermore, consumers have piled up reserves of about $215 billion in cash or its equivalent. These reserves offer a new and powerful inducement to increased selling and advertising effort even in the face of a possible decline in consumer income.

Taking the Longer View

However, the principal reason why a sales decline was attacked with increased advertising is management's new-found conviction that good advertising is essentially an investment in the development of a market. Successful development requires sustained investment. The inclination of business management to take this longer view, is, of course, motivated by the fact that the American market, with over 3 million consumers being added annually, is growing at a prodigious rate.

Ten years ago only a handful of companies had plans for investment in new producing facilities extending beyond the current year. Today almost all leading companies have investment programs running some years ahead. And keeping pace with these long-range business investment plans has been the development of sales and advertising programs to

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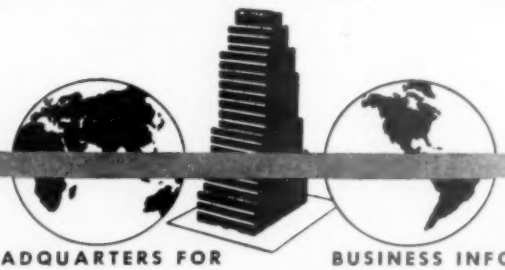


HEADQUARTERS FOR BUSINESS INFORMATION

Kill a Business Recession

reach tomorrow's greatly expanded markets.

This crucial role of advertising in providing driving power for our economy is gaining greater recognition every day. In his recent book, "People of Plenty," Professor David M. Potter of Yale University remarked: "Advertising is not badly needed in an economy of scarcity, because total demand is usually equal to or in excess of total supply, and every producer can normally sell as much as he produces. It is when potential supply outstrips demand—that is, when abundance prevails—that advertising begins to fulfill a really essential economic function."

Advertising's Key Role

Today abundance so completely prevails in the United States that it has been conservatively estimated that as much as a third of everything offered for sale falls in the realm of "optional consumption." That is, consumers can "take it or leave it" without any immediate personal inconvenience. But if they decide to "leave it," a terrific economic depression will not be far behind. In such circumstances, advertising—in which, in all of its forms, we are now investing about $9.2 billion annually—clearly is of crucial importance to our continued prosperity.

In performing its key role in past years, American advertising never realized its full potential. It successfully promoted sales. But it never was called upon to promote an overall economic stability as a direct outgrowth of increased sales.

By successfully promoting both sales and economic stability, as it did in 1954, advertising surely has added new strength to the American economy. It has also added a great new and constructive dimension to advertising itself. This accomplishment gave great significance to the celebration of the first National Advertising Week in February, 1956.

One of the surest means of expanding your sales volume in today's $150 billion *industrial* market is through dominant advertising in the publications directly serving your major customers and prospects.

McGraw-Hill's business and technical publications can give you quick access to the men who initiate, specify and approve the purchases of industrial products and services. Because all are leaders in their respective fields, you are assured a maximum return on your investment when you specify a McGraw-Hill publication to carry your advertising to your most important markets.

SINCE 1952 Standard of Ohio has studied the use of electronic computers in all departments

THIS SUMMER Sohio will get one of the first giant electronic brains delivered to the oil industry

Sohio Prepares Today to Use

The oil industry is in the early years of a new era of speed and efficiency. That's because oil companies like Standard Oil Co. (Ohio) are learning to think with electronic brains, and work with electronic hands. Now the companies are applying their new ability to operations in all parts of the industry.

Next week Sohio will complete the remodeling of 3,900 sq. ft. of office space at its Cleveland headquarters. The company will then be ready for the June delivery of an electronic data processing monster, the IBM 705 (drawing), from International Business Machines Corp.

For years Sohio and many other oil companies have been well aware of the potential in machines such as this, having worked with their smaller predecessors. Basically, the machines can handle all kinds of mass information thousands of times faster than human hands. They can make complex calculations far beyond the capacity of the human mind. The aim of the companies is to harness this potential to oil operations.

The rapid growth of electronics will affect every oil manager at all levels. The machines will be working on problems in all segments of the industry. The result will be felt from the drilling rig to the directors' meeting.

Managers in every field will be given more complete data on which to base decisions than they ever had before. To Sohio and the rest of the industry, the machines promise new efficiency in exploration, drilling, production methods, refinery operation, tanker and pipeline scheduling, truck routing, terminal throughput, station operation, market analysis, research, and even human relations. Rapid progress is already being made in many of these fields.

Although only the big companies, such as Sohio, will be able to afford the most advanced programs, smaller oil companies will be doing their share. The independents can maintain their relative position with small but highly effective computers. Working through research institutes and computer manufacturers, they have access to the biggest machines.

Industry stress this year is on streamlining accounting and other mass-information work in the office. But the emphasis has already begun to shift from saving time to making money. More and more, the big companies are turning their attention to long-range possibilities that could bring fantastic savings. Example: Balancing all the variables in company-wide activity to discover the procedures in each department that will add up to the best company operation.

Sohio has a jump on some other companies, since the biggest computers are just now becoming available, and it is getting one of the first. Last month IBM delivered the first of its giant 705 machines to Esso Standard in Baton Rouge, La. Sohio will get the second. Esso should get the third, at Bayway, N. J., by early fall. And the fourth should reach Indiana Standard's Whiting refinery by the end of the year. Ten of the 200 big machines that IBM has installed, or has on order, are ticketed for oil companies.

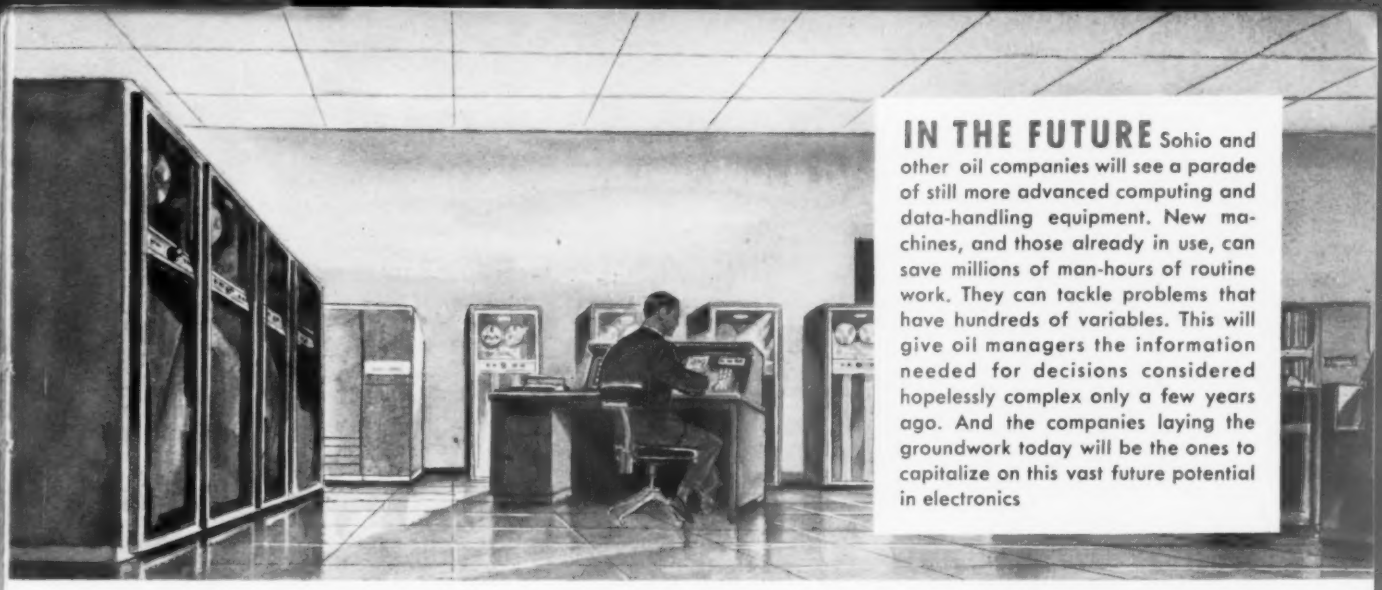
The industry will have a growing number of computer models to choose from. General Electric, a newcomer to the field of electronic data-processing, estimates that computers will be a $500-million business by 1960. Besides IBM and GE, the manufacturers include Burroughs Corp., Sperry-Rand, Radio Corp. of America, and many others. Only last month another newcomer, Datamatic Corp., unveiled a new $1½-million machine. Last week Burroughs said it soon will start shipments, to oil and other companies, of its new pint-sized "robot brain"—tailored especially for smaller firms.

Rental on Sohio's big machine will be $36,000 a month. This is typical, since the large units usually rent for $30,000 to $40,000 a month, depending on optional equipment. Purchase price would be between $1-million and $2-million. Rental prices usually include servicing, spare parts, and maintenance, which amount to a strong inducement for renting.

Smaller computers can be had for much less. And some oil companies have been buying time on big machines at the manufacturer's office. Sample cost for this is $400 to $500 an hour, with the manufacturer furnishing specialists if they're needed.

An advantage of this system is that the company gains access to computers without making a big investment. It can train personnel and expose executives to computer work without committing itself. The system opens the door to smaller companies with limited resources. And it can break bottlenecks for the company that has its own computers, but finds them temporarily backlogged.

Sohio started its computer work by collecting all available facts. And it set up an organization to handle the job. Even before it got actively into the computer field, the company had



IN THE FUTURE Sohio and other oil companies will see a parade of still more advanced computing and data-handling equipment. New machines, and those already in use, can save millions of man-hours of routine work. They can tackle problems that have hundreds of variables. This will give oil managers the information needed for decisions considered hopelessly complex only a few years ago. And the companies laying the groundwork today will be the ones to capitalize on this vast future potential in electronics

Tomorrow's Electronic Brainpower

been sending its top accounting and methods people on tours of computer installations. It had them attend conferences and read pertinent literature.

Because Sohio management believed that electronic computation should be available to all departments, it gave the job of setting up the program, in 1952, to the methods and procedures department. This is headed by James Durham, whose assignment at that time was to study all possible computer uses—from accounting and office tabulation to refinery operations and research. Ralph Martin, Sohio's controller, has been responsible for the over-all program.

To speed the work, Sohio, in 1953, hired Norman Patton, a specialist in computer analysis, application, and coordination. He had been doing government work at the Lewis Flight Propulsion Laboratory in Cleveland.

At that time, Sohio had five of IBM's smaller 604 computers. These were being used by the accounting department and to some extent by the manufacturing department. Patton's job was to coordinate all computer activity. He was to make all department heads aware of the work that could be done on computers. He was to encourage the use of machines Sohio already had, and to broaden the possibilities for usage.

About that time, Sohio put in an order for a bigger IBM 650 magnetic-drum data-processing machine. But the company did not mark time waiting for delivery (in April last year).

Formal indoctrination of personnel was Sohio's next move. In April, 1954, the methods and procedures department started an eight-week course, two hours a week. The course was attended at first by 20 department heads in the Cleveland home office. Later, it was repeated for men from Sohio's accounting and production departments at Oklahoma City. Instruction included the history of computing machines, the components of a computer and how it works, and a review of the computers then available.

A second course explained general-purpose card programming on the IBM 604. This was given to personnel in the manufacturing, sales, and accounting departments.

"We did not rent the new IBM 650 with the idea of saving money or cutting personnel," says Sohio's computer specialist Norman Patton. "We felt the machine was our chance to learn electronic computation cheaply." In fact, Sohio ordered a 650 without figuring out how much time or money would be saved. Rental is about $4,000 a month.

Sohio started the new 650 on processing all of the company's payrolls. It chose this because payroll was already highly mechanized and the changeover would be easier there than in other operations. Previously, five smaller machines had been used for the job.

The actual dollar savings were not great. That was because the payroll department immediately broadened its activity to include a lot more information on the payroll cards. This extra data was for the use of other departments, as well as for payroll itself.

But the time-saving in processing the company's entire payroll with the 650 has been tremendous. It takes only 20% of the machine's operating time (based on an eight-hour day) to handle the payroll. The rest of its time is free for other accounting or technical computation. And the smaller machines have been freed to work on other projects.

There was no cut in payroll personnel. The increased work the 650 has allowed the payroll department to do has held up the employment level.

To justify fully the new 650 computer, Sohio felt it had to make the machine do some jobs that couldn't have been handled before. One of these was increasing the speed and scope of mass-spectrometer samplings of dry gas at the refinery.

"The saving in time on payroll processing was gratifying," says Durham. "But we would have had to get the payroll out anyway." His men ranged through various departments and came up with many jobs that needed doing—but which, because of their complexity, had never been attempted.

For many years, Sohio had been taking mass-spectrometer samplings of gas at its Cleveland No. 1 refinery. Six or seven readings were taken each morning and run through the spectrometer. The readings were then computed out on an attached computing device. Disadvantages of this method: It took most of the day to get final results. The results gave only the mol % (percentage in terms of the number of molecules). And the results covered only the 10 most apparent elements.

Sohio speeded the process somewhat by pushing the mass-spectrometer readings through the IBM 604s. But even then the computation took a half hour for each sampling. And, as before, no evaluation (outside of manual computation) was being made of

". . . delay in installing electronic computers is no longer wise . . ."

STORY starts on p. 24

molecular weights, Btu values, and other factors.

Then Sohio put the 650 to work on the problem. Now, 20 to 30 readings are taken each morning. These readings are sent by messenger from the company's product and development labs by midmorning. At 11:30 a.m. the computations are made on the 650, in a total time—for all 20 to 30 readings—of about 17 seconds. And the computations now include mol %, liquid percent of composition, gross Btu per cu. ft., b/d per 1,000 cu. ft. of component, critical temperature, and critical pressure. The results are mimeographed and returned by messenger to the labs by 1 p.m.—or phoned over if needed sooner.

This system not only adds speed and permits more complex work, it also eliminates duplication of work in the lab. Under the old system, technicians in different parts of the same building might have needed the molecular weight of a specific trace element. Formerly both would have spent hours with pencil and slide rule, making independent calculations. Now all they do is consult the mimeographed sheet.

Another "new" job done by the 650 is quick reporting of Sohio's profit per product. This lets the sales research department keep on top of profit trends.

Sohio markets about 5,000 different products through nine sales channels (retail, distributor, industrial, farm, etc.). The time involved in figuring the profit to Sohio for each of the 5,000 products had been a prohibitive factor in the past. The calculation would have taken months.

But on the 650, Sohio can run a profit-per-product breakdown on all 5,000 products, through the nine sales channels, in less than eight hours.

The machine also helps out in emergencies. Late last year it prevented a serious delay in Sohio's first petrochemical deliveries. When the ammonia unit at Sohio's new petrochemical plant at Lima, Ohio, was put on stream, it was found that the vessel could not operate at design capacity. The temperature at capacity was exceeding safety limits.

But the company had used its 650 for computation work on the vessel. The basic factors were still lodged in the machine's memory. Sohio's engineers had only to substitute new variables. And by the first night, they had the answer to a problem that might have taken weeks to solve.

The 650 has handled many other jobs. It has figured payroll expense distribution by company and department. It has checked gasoline shortages and overages at service stations. It has analyzed what characteristics the ideal station operator should have.

Even before the delivery of the 650, Sohio management had appointed a five-man task force to study the advisability of getting a really big electronic machine.

Members were four vice-presidents and Controller Martin. They invited bids from all computer manufacturers. And they chose IBM's new 705 electronic data-processing machine.

The job that was the basis of Sohio's figuring was that of bulk-sales accounting, which is a large part of the company's invoicing activity. The rental figure is only 30% of the sales accounting cost, so, theoretically, the machine can save up to three times its cost.

When the new giant brain arrives in June, it will be housed in an entire south wing floor of the Republic Building, adjacent to Sohio's main offices in Cleveland.

The 705 will have a control board, a central processing unit, a power unit, 14 magnetic tape units with accessory power units, and a large number of printer, card-punch, and card-reading units. The machine will have a core memory of 20,000 "words" (10-digit numbers). This compares with only 2,000 words available on the 650. The new equipment will be staffed by six Sohioans, and probably three IBM engineers, on a full-time basis.

Outside the bulk-sales accounting job, the new computer's first big target will be the mathematical simulation of all processes at Sohio's refineries in Cleveland, Toledo, and Lima, Ohio, and in Latonia, Ky. The company wants to determine exactly how much crude should go into a refinery on a given day of a given season to recover so much gasoline, distillate, asphalt, and other products.

Every conceivable variable will be thrown into this calculation. The goal is to let the manufacturing department know how much product can be expected from a certain charge and type of crude—and what the optimum operating conditions are in each process vessel at each refinery.

Sohio would then recompute the results to show how pipeline schedules should be set up. It would have a new basis for deciding how much inventory of each type of finished product should be carried. And it would have a new approach to deciding how seasonal buying trends should be used to revise crude charges.

To prepare for this job on the 705, the company now has such a program underway on the 650 machine. But this is limited to the No. 1 refinery in Cleveland. Sohio officials say they have no idea how many dollars such studies will save over a period of years. But the guesses run way up in the millions.

Even the computer manufacturers themselves don't know all the possibilities of the big machines. In manufacturing alone, the experts now think that almost every condition found in a refinery can be duplicated mathematically—with positive results. They are betting that little if any pilot-plant construction will be needed after machines already on the market get to work. A similar potential exists in all other segments of the industry.

As Sohio's Ralph Martin concludes, "delay in installing electronic computers is no longer wise."

A Machine Is Lost Without Its Master

For all their fantastic computing skill, electronic brains have one serious fault—they can't think for themselves.

As the top computer specialist with one major company puts it, "These are moron machines. They'll do a very good job of whatever you tell them to do. But they can't do your thinking for you."

This puts a premium on men with the imaginative power to conceive the new approaches to oil operations that the machines can handle. And many oil companies are now having trouble getting the right personnel for this job.

The computer specialist observes, "Failure to get the men who can see new concepts will be a limiting factor in oil company programs."

When the pressure's on

Another trainload of huge Pressure Vessels leaves Sun Ship's Chester plant.

If you're ever in the market for large high-pressure tanks—that's a good time to think of Sun Ship.

Construction of these giant tanks . . . whether for operating or for storage under pressure . . . whether for land or marine installation . . . has been an important part of Sun Ship's work for the petroleum and chemical industries for many years.

The trainload shown above, which includes tanks of 55,000-gallon and 30,000-gallon capacities—used for storing L.P.G.—typifies Sun Ship's experience in building large tanks which must carry pressure.

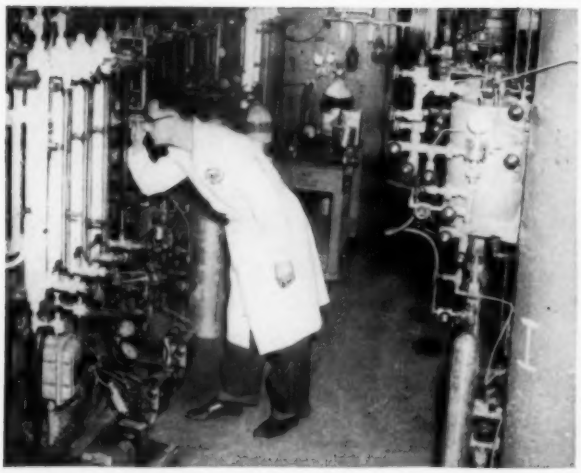
Shipments of these and of other huge vessels in carloads or trainloads is a familiar sight at the busy Chester plant. Fractionating towers, stills, catalytic cracking cases, reactors and other specialized equipment are turned out at Sun Ship's great and versatile plant on the Delaware, from which shipment can be made either by rail or by water.

Sun

SHIPBUILDING & DRY DOCK COMPANY

SINCE 1916

ON THE DELAWARE • CHESTER, PA.



FROM INITIAL WORK on a 12-gal.-a-day pilot plant . . .

TO FINAL TESTING with a 3,000 b/d unit at Baltimore . . .

Esso Introduces Powerforming Process

Esso Research & Engineering Co. last week formally announced its new fixed-bed catalytic reforming process, called Powerforming. In pilot plant operation the process has produced 100-octane clear gasoline from heavy Arabian crude oil.

Esso developed the cyclic fixed-bed process as a companion to its established Fluid Hydroforming process in order to broaden its participation in the continually growing catalytic reforming field. The company's announcement of the new process confirmed an earlier PETROLEUM WEEK report of this development (PW—Feb.3'56,p22).

Three Powerformers are now in operation at refineries of Standard Oil Co. (N. J.). Thirteen others are definitely scheduled to be built by Jersey Standard affiliates in the U. S. and abroad, involving an estimated total investment of $60-million.

The largest unit now planned is to be built at Esso Standard Oil Co.'s Bayway refinery at Linden, N. J. This will be a 20,000 b/d unit. Others planned for early completion are an 8,000 b/d unit at the Montreal refinery of Imperial Oil, Ltd., a 5,600 b/d unit at the Bari (Italy) plant of Stanic Industria Petrolifera (partly owned by Jersey), and a 1,000 b/d unit at the Trieste refinery of Esso Standard Italiana.

The three units now on stream are a 3,000 b/d Powerformer at Esso Standard's Baltimore refinery, a 2,500 b/d unit at Carter Oil Co.'s Billings (Mont.) refinery, and a 2,000 b/d unit at Imperial's Edmonton (Alta.) refinery. The unit at Baltimore was the pilot-commercial test plant for the Powerforming process.

Results of pilot plant operation show the Powerformer, using a 29.7-research-octane feedstock based on heavy Arabian crude, produced a high yield (69%) of C_5-plus product of 100 research octane, clear.

Such results compare favorably with recent operating reports of two other reforming processes operating on Middle East crudes. These crudes, containing a high percentage of paraffins, are the most difficult to reform and provide good tests for reforming techniques. Standard Oil Co. (Ind.) announced last week that its Ultraforming process has produced a C_5-plus product of 97-octane, research clear, from 40-octane naphtha feed derived from Kuwait crude. Previously, Universal Oil Products Co. announced a Platformer of British Petroleum Co. produced a 92-octane research clear product from Kuwait crude.

The new Esso Research process is one of several reforming processes that have been developed primarily for producing high-octane motor fuel. These processes, of which 13 have been commercially developed, are the most versatile of all refining techniques (PW—Aug.12'55,p24).

The features of the Esso Research process are a new platinum catalyst and a new catalyst-regenerating technique. Esso Research describes its catalyst as containing "relatively small quantities of platinum." Five other reforming processes also use a platinum catalyst.

Esso Research says its new process is quite similar to the Ultraforming process. The latter also uses a platinum catalyst. It grew out of the first catalytic process developed back in 1939, known as fixed-bed Hydroforming, which was developed by Esso Research's predecessor company in conjunction with Indiana Standard and M. W. Kellogg Co.

Esso Research's work with the fixed-bed Hydroformer also led to its development of Fluid Hydroforming in 1951 as a method of increasing catalyst life.

The indication that the new Esso process also may be similar to other fixed-bed reforming techniques comes from the fact that Esso Research will license its new platinum catalyst for use in other reforming processes.

Esso Research officials say the advantages of the Powerforming process, however, can be obtained only by using the new catalyst with the Esso-developed regenerating and catalyst-cleansing technique.

The Esso Powerforming process uses four, five, or six reactors, one of which serves as a "swing" reactor to replace one of the primary reactors while it is being regenerated.

The fact that the process is regenerative is not in itself unique. Several of the existing fixed-bed catalytic reforming processes regenerate the catalyst by burning off the carbon deposits. Several of the other fixed-bed reforming processes can be made regenerative without shutdown by adding swing reactors.

What's New / IN REFINING

Pitt-Consol Chemical Co. has started construction of a plant at Newark, N. J., to produce cresylic acid from petroleum feedstocks, using a new process developed by the company.

The new facilities, expected to go on stream next October, are at the site of a coal-tar processing plant formerly owned by Reilly Tar & Chemical Corp. and acquired by Pitt-Consol last August.

Pitt-Consol is a subsidiary of Pittsburgh Consolidation Coal Co., the county's largest coal producer. Its first entry into the chemical field is significant in that the process is based on petroleum feedstocks derived from refinery waste gases.

Pitt-Consol does not plan to operate the plant entirely on petroleum feedstocks, however. Liquids produced from coal by the company's new low-temperature carbonization process are expected to be used for future expanded production of cresylic acid and related intermediates.

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A new plant to produce 7-million gal. of methanol annually will be built by Hercules Powder Co. at Louisiana, Mo. The $2-million plant will be adjacent to Hercules' new multimillion-dollar pentaerythritol and formaldehyde plant, which will use a large part of the annual methanol production. Methanol is used to make formaldehyde, which is the principal raw material in the manufacture of pentaerythritol.

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Shell Oil Co. of Canada, Ltd., will add facilities at its Montreal East chemical plant to manufacture methyl ethyl ketone and secondary butyl alcohol. Butylene, raw material for the new unit, will come from Shell's Montreal East refinery. Canada currently imports all supplies of these two products.

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A gas-from-oil unit, said to be the largest cyclic catalytic gas-making installation in the world, will be built for British Petroleum Co.'s Isle of Grain refinery, at Kent, England. The 20-million cf/d plant will supplement existing supplies distributed through the Southeastern Gas Board's grid system from Sittingburne, Kent, to Guilform, Surrey. It will be built by Power Gas Corp., Ltd., of Stockton-on-Tees, and is expected to be in production by the autumn of 1958.

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Shell Chemical Corp. is building a new resin unit at its Houston plant to manufacture market-development quantities of new epoxy resins. The unit will produce new developmental resins and curing agents for customers' experimental use and for small commerical production. It will begin producing in early April.

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A second major East Coast polyethylene plant was announced last week. Koppers Co. said it will build the plant at Woodbridge, N. J., using the Phillips low-pressure process. The ethylene raw material for the plant will come from the ethylene plant being built by Esso Standard Oil Co. at its Linden (N. J.) refinery (PW—Feb.3'56,p21).

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United Refining Co. resumed production of Pennsylvania bright stock and petrolatum last week at the Seneca branch of its Warren (Pa.) refinery, damaged by fire last Oct. 30 (PW—Nov.4'55,p13).

Production is at approximately 70% of capacity, with full production to be resumed in about two weeks. Present bright-stock commitments amount to 60 days full production, company officials said.

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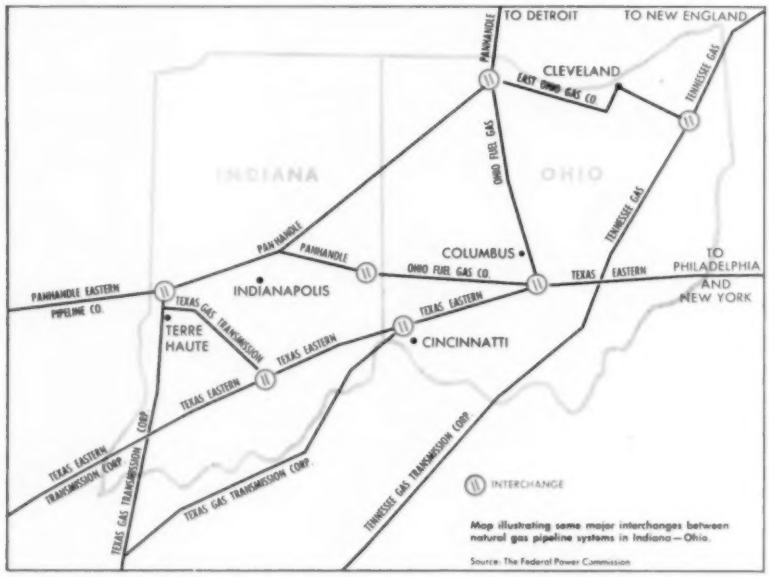
Goodrich-Gulf Chemicals, Inc. is starting a four-year expansion program at the Institute (W. Va.) synthetic rubber plant it is buying from the U. S. government. Final approval of the sale is still pending.

The modernization program includes installation of refrigeration units for making cold rubber, and equipment to convert the present batch process to a continuous rubber-making method.

Biggest U.S. Refinery Sets New Records

One of the reasons for the record refinery runs in the U.S. in recent weeks is the peak throughput of the nation's largest refinery, Esso Standard Oil Co.'s Baton Rouge (La.) plant. The plant, which has a rated capacity of 315,000 b/d, set a new monthly record for U.S. refineries in January, processing an average of 300,919 b/d. Then, on Feb. 10, the plant set a new one-day record, running 321,159 bbl. The previous one-day record was set by the Baton Rouge refinery last June 25 when it processed 317,714 bbl. To reach the new record, the No. 2 pipe still, which had been idle since November, 1953, had to be reactivated.



SOME SWAPPING now occurs along gas lines, but owners differ when asked . . .

Will Gas 'Grid' Grow?

The Federal Power Commission is pressing for a nationwide network of interconnected gas transmission lines that would enable gas to be shunted almost anywhere. But pipeliners aren't sure it can be done.

Carl T. Kallina, chief of FPC's Division of Gas Certificates, says the network is already underway. "In the area from the Mississippi eastward," he told PETROLEUM WEEK this week, "we've reached a point where, when one company gets in trouble today, it can get help easily and quickly. Because of the interchanges that are now in place (see map for examples), the transmission companies can swap gas around or pick up mutual customers."

A full-scale gas grid, as envisioned in several government circles, would give gas the flexibility of movement now possible with boxcars, telephone calls, and electric power.

One of the big reasons FPC promotes gas interchanges is that they have already proved valuable in emergencies.

Two years ago, says Kallina, the nation's capital might have experienced a gas famine. A breakdown occurred in the trunkline of Atlantic Seaboard Corp., which supplies the gas utility that serves Washington. Atlantic was able to continue service without interruption, however, because it has a link-up with Transcontinental Pipe Line Co., where the two lines run parallel about 15 miles outside metropolitan Washington.

Such emergency swaps have also occurred elsewhere in the country—enabling business and industrial communities to work unaware through periods when primary gas lines were short on supplies, or out of service at some point.

FPC also likes interchanges for their economic advantages. Usually, the commission demands that a proposed new line be able to "stand on its own"—that it be able to show enough reserves and customers to justify construction—before a go-ahead is given. But FPC encourages—sometimes insists upon—interchanges that make the most of existing facilities.

Thus, United Gas Pipe Line Co., before getting permission for a new line, had to agree to carry gas from Carthage, Tex., to points in South Texas for Tennessee Gas Transmission Co. (and for other companies as well).

Another example of interchange economy is the arrangement between Texas Gas Transmission Corp. and Texas Eastern Transmission Corp., both of which tap Gulf Coast gas fields. Texas Gas Transmission's prime markets are in Ohio and Indiana; Texas Eastern's terminus is the eastern seaboard.

Texas Eastern has more pipeline capacity than it has gas supplies, while Texas Gas has plenty of reserves but not enough capacity to handle the initial move to markets. So Texas Gas sells some of its supplies to Texas Eastern at Lisbon, La., then buys back gas at Lebanon, Ohio. Because both can move the amount of gas they need, without "extra" investment, FPC feels the consumer also benefits.

Many interchanges, scheduled regularly, are paid for under terms regulated by FPC. But many other trades take place on an "even swap" or give-back-gas-tomorrow basis.

A third reason for FPC's interest in gas-grid growth is to promote optimum use of natural resources. "About the only limitation on ability of transmitting companies to take excess flare gas," says Kallina, "is pipeline capacity—which could be found almost miraculously through careful planning of interconnections and displacements. Actual cases can be cited in which substantial volumes of gas were made available for storage and other uses at locations remote from the original source."

The commission is so serious about interchanges that it once asked Congress for authority to make them mandatory. This was in 1952, when FPC proposed an amendment to the Natural Gas Act. This would have given the commission the right to "require natural gas companies to interconnect their facilities with others engaged in the sale and distribution of natural gas, and to sell or exchange gas with such persons, together with authority to prescribe the terms, arrangements, and conditions for such interconnections and the compensation payment payable therefor."

Congress didn't oblige. But in weighing applications for new lines, FPC has—and uses—the authority to impose "appropriate conditions," including interchange provisions.

This conditional authority is used sparingly, probably because of the industry's willingness to install interconnections voluntarily. Most gas pipeline applications now before FPC, in fact, include interchange proposals. Notable examples are the applications of Natural Gas Pipeline Co. of America and Midwestern Gas Transmission Co., who have opposing plans to serve Midwest markets (PW—Feb.17'56, p9). Natural Gas would tap Rocky Mountain sources, through a link-up with Colorado Interstate Gas Co. It would also have the possibility of Canadian or New Mexican reserves, via a further connecting line between

Colorado Interstate and Pacific Northwest Pipe Line Co.

Midwestern would rely on connections with its parent, Tennessee Gas Transmission Co., and with a proposed Canadian trunk, Trans-Canada Pipe Lines, Ltd. Midwestern's application also says it can "interconnect, either directly or indirectly, with every major pipeline in the United States."

Most gas pipeliners agree with FPC on the feasibility of a gas-gathering network, a PETROLEUM WEEK survey reveals. Some say ratable-taking, as in Louisiana and in some Texas fields, will help push development of such a system.

But many feel there'll never be a mainline distributing network. Technical problems alone, they say, present too big an obstacle.

Among the problems they cite:

- Present interchange points are between "compatible" lines. This means that the lines carry gas under similar pressure. Where a line would have to raise or lower pressure in order to use gas from another, trading might be neither physically nor economically practical.
- The fact that pipelines carry different types of gas—with different Btu ratings—also hampers interchange considerations. Furnaces, ranges, and other consumer gas outlets are geared to the type of gas they receive normally. "Emergency" gas of a different type might not only raise hob with these outlets, but it might run afoul of legal specifications in that area.

There are also political drawbacks to network development:

- Now that the Harris-Fulbright bill has been vetoed, say some companies, all pipeliners will be guarding their supplies jealously.
- Mass interconnections, other companies feel, could eventually lead to more government interference—to "somebody in Washington turning the valves."

And as for developing a network to meet "emergencies," most pipeliners say the most common emergency is when supplies dwindle in peak-load periods. And then they're nearly all in the same fix—interconnections or not.

"We had a breakdown once in midwinter," says one pipeline company spokesman. "We didn't even bother to ask for help from other lines that we're connected with. We knew nobody else had any spare supplies. We didn't go out of business. We had some storage—and a fast repair crew. But you can see that if we didn't expect help in a breakdown, we sure wouldn't expect it if we were simply running low on gas."

Other companies acknowledge having received or having given "emergency" aid in peak-load periods. But they feel this was mostly luck, not the result of systematic planning.

There will be more interconnections coming—for reasons of operating economy—but these won't add up to a distributing network, most gas transporters conclude.

As one spokesman puts it, "We're just not like the railroads, the telephone companies, or the electric utilities. We put up a line between points of diminishing supply and mounting demand. There are no fixed, long-term operations possible. We have to hustle to keep our own systems working right. We can cooperate to some degree—and we do. But getting everybody together all of the time, all over the country, seems impossible."

What's New / IN TRANSPORTATION

A Busy Week In Tanker Building

The Maritime Administration is about to order construction of a new-type high-speed tanker suitable either for peacetime commerce or for wartime mass production.

Eight shipyards bid last week for a contract to build the prototype vessel. It will be a 22,590-ton, 21-knot tanker with a capacity of 180,000 bbl. Specifications make the new tanker capable of refueling Naval task forces. But Maritime feels it will also be practical for commercial use.

If past procedure is followed, the contract will be awarded to Sun Shipbuilding & Drydock Co., lowest fixed-price bidder. The firm asked $11,379,473. Congress only appropriated $10-million for the project, but sources close to the administration feel financing will be "worked out."

American shipyards will build three of the 15 new tankers just ordered by Stavros S. Niarchos, Greek shipowner. The remaining dozen, plus five cargo ships, will be built in Germany, Japan, and Sweden. The $100-million project was announced this week. It will give Niarchos a fleet of 65 vessels, totalling more than 1.5-million tons.

Largest of the new tankers will be a 737-ft., 46,000-ton vessel to be built at the Quincy (Mass.) yard of Bethlehem Steel Co. Aside from the superliner, United States, it will be the largest commercial vessel ever built in this country. Two 661-ft., 32,600-ton tankers will be built at Bethlehem's Sparrows Point (Md.) yard.

The "Cities Service Baltimore," a supertanker launched this week, will carry up to 18 kinds of oils and gasolines at one time. The 661-ft.-long, 273,175-bbl. carrier hit the waves at the Sparrows Point (Md.) yard of Bethlehem Steel Co. It's the first supertanker built under the Maritime Administration's "trade-in-and-build" program. The new vessel, and two sister ships being built for Cities Service Co., will replace seven T-2 tankers in the Cities Service fleet.

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Railroad freight rates went up 6% this week, under an order issued last week by the Interstate Commerce Commission. The hike affects shipment of crude oil and products. (PW—Feb.3'56,p10).

•

Three oil companies will build a 20-in. pipeline to link principal crude carriers in the Chicago area to the eastward-flowing Buckeye Pipe Line system. The plan was announced last week by Ashland Oil & Refining Co., Pure Oil Co., and Sinclair Pipe Line Co. The new line, to be operated by Tecumseh Pipe Line Co., will run from East Chicago, Ind., to Cygnet, Ohio. The Buckeye line, which runs to New York, will continue service from Griffith, Ind., to Lima, Ohio.

•

Imperial Oil Ltd. will increase capacity of its Sarnia-Toronto products pipeline by a third. Imperial said last week it plans a 38-mi. loop of 12-in. line, running parallel from Waterdown, Ont., to the company's new North Toronto terminal. The loop, plus additional pumping equipment at the Sarnia refinery, will boost the line's capacity by 21,000 b/d, to more than 76,000 b/d. Cost will be about $13.4-million. It will be completed by next September.

DEPT/Marketing

To Fight California Price Wars

A policing campaign aimed at strengthening the marketing position of independent refiners was announced last week by the Independent Refiners Assn. of California, Inc.

George T. Goggin, recently elected president of the reactivated group, spelled out the IRA's objectives in a talk before the Los Angeles Petroleum Press Club. He reported that the market-policing program was in the form of a resolution which would be considered by the full membership at its next meeting. Seventeen of the state's 18 independent refiners are members of the association, and the 18th is expected to join soon.

James H. Lewis, executive vice-president and general manager, told the group that there is a basic difference between the present reorganized group and its predecessor. He explained that formerly some companies that were marketers exclusively were members, whereas present membership includes only companies that operate refineries.

As one of its prime objectives in the clean-up drive, IRA is going to try to end the frequent, and destructive, price wars that have shaken the market during the past two years.

Goggin, who is executive vice-president of Douglas Oil Co. of California, told the Press Club that the price wars "have caused severe and unnatural fluctuations in the market." He adds:

"There have been numerous investigations of the situation by committees of the House and Senate. We intend to cooperate with the aims and policies of these committees and with the Federal Trade Commission, which now regards voluntary price allowances granted to gasoline dealers to permit them to meet competition as a violation of the Robinson-Patman Act" (PW—Mar.2'56,p26).

"In addition," Goggin said, "the association intends to appoint a committee to investigate any and all instances of illegal trade practices, including local price discrimination, sales at less than cost, secret rebates, allowances, commissions or unearned discounts, and any other practices in violation of the Robinson-Patman or state Unfair Practice Act."

IRA also will try to secure a larger share of military petroleum purchases. The association already has taken some steps along this line.

Lewis reported that Col. John L. King has been retained as a Washington representative for IRA. "King's first job," he continued, "was to move into the Office of Defense Mobilization and get off someone's desk a directive which should have gone into effect Jan. 14."

This directive provides that a proportionate share of the government's petroleum needs should be allocated to small businesses in the oil industry.

Lewis said IRA also would attempt to show that the independent refiners in California could supply about 20% of the military's jet-fuel needs in their area (including Arizona). He said independents received only 6% of the last jet-fuel purchases by the Armed Forces Petroleum Purchasing Agency.

Lewis, former president of Sunset Oil Co., said that independent refiners cannot compete on a straight price basis with the majors in such bidding. He noted that bids by independent refiners at the last invitation ranged from 10.45¢ per gal. to 11¢ per gal. for JP-4. This compared with major bids ranging from 9.9¢ per gal. to 10.85¢ per gal.

Goggin asserted that "the majors make their money on crude production while we have to show a profit on efficient refinery operations."

The association also will try to help independent refiners get "the right kind of crude at the right price."

No specific plan has yet been worked out to solve this problem. But, Goggin said, the independent refiner, along with other California oil companies, "is looking more and more toward foreign crude."

Lewis said IRA would be in favor of any pipeline that would deliver the right kind of crude, at a good price. But the proposed West Texas-to-California pipeline, he continued, has a number of blind spots in it. He said independent refiners had been approached for financing help, but could not receive any guarantees on crude quality or price.

BP Tests Oils, Fuels, in Sweden

Better fuels and lubes for the world's retail markets will result from this test of cold-weather performance by British Petroleum Co. technicians in Sweden. Object of the tests was to learn more about the effects of temperature on volatility, particularly in the range from 32F to —10F. Twelve cars, representing various car-manufacturing countries, were used in the road tests. The study was the final portion of a survey conducted by British Petroleum's Sunbury research establishment. Other tests, carried out in the Sahara Desert, showed a one-to-one ratio between the increase in air and fuel-system temperatures—that is, if the air temperature increased by one degree, so did the fuel-system temperature. The Swedish tests showed this ratio tends to decrease at temperatures below 32F.

What's New
IN MARKETING

Tresler Oil Co., Ohio's largest independent marketer, is adding about 30 more stations to its present 100 outlets. This will put the company on a par with major suppliers in Cincinnati marketing operations. Tresler distributes its line of gasoline, lubes, and TBA items under the "Comet" trademark.

Tresler acquired 28 of the new stations last week by buying Cincinnati Oil Works Co. in an estimated $1-million deal. Cincinnati had been marketing its gasoline under the "White Rose" trademark since 1880. James Krumme, vice-president in charge of Tresler's retail sales, told PETROLEUM WEEK that the complete Tresler line will be installed in the new stations. The company will market no new items as a result of the merger. Tresler also plans to build four new stations in the Cincinnati area.

•

The Retail Gasoline Dealers Assn. of Massachusetts plans to appeal a recent Middlesex County Court decision which has dealt another blow to the state's minimum-dealer-margin law. Judge Joseph E. Warner ruled that an Everett dealer didn't violate the below-cost act in selling gasoline on a 3¢ "cost of business" margin. The act prescribes that the cost of doing business in that area is 5.9¢.

The margin law met with its first legal setback in December, just a few weeks after it was put into effect (PW—Dec.30'55,p21).

•

U.S. oil companies' gasoline discounts to large commercial accounts are meagre compared to the write-offs given commercial accounts in Sweden. There, a 19% cut under retail price to large consumers is commonplace, and some commercial discounts are said to go as high as 30%. And the practice is gaining rather than diminishing.

The reason for the big discounts is that gasoline demand in Sweden is rising at a slower rate than the demand for fuel oils. (Oil heat in homes has increased 1,600% since 1939.) Therefore Swedish companies must push gasoline sales—by discounts to big buyers—to keep their tanks clear, and to maintain the high refining rate needed for fuel oil. However, both the public press and the trade journals have been growing critical of the extensive discounting.

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Petroleum Week

330 West 42nd Street, New York 36, N. Y.

The Market Place AROUND THE WORLD

Prices compiled for PETROLEUM WEEK by Platt's OILGRAM Price Service and National Petroleum News, McGraw-Hill Publications

All Prices as of March 5

Bold face type indicates changes from previous week

KEY PRICES—REFINED PRODUCTS

(¢ per gal., except dollars per bbl. where $ is shown)

Western Hemisphere

U. S. Gulf Coast, cargoes
- Gasoline, 97 oct prem. 13-13.5
- Gasoline, 90 oct reg. 11-11.5
- Kerosine 9.5-9.75
- Heating oil, No. 2 ..... 9-9.5
- Gas oil, 48-52 d.i. 9.125-9.375
- Fuel oil, bunker "C" $2.10-2.15

Caribbean, cargoes
- Avgas, Grade 100/130 ..... 16.75
- Gasoline, 93 oct research prem. 11.5
- Gasoline, 87 oct research reg. 10.5
- Gasoline, 79 oct research 9.75
- Gasoline, 70-72 oct motor method 9.5
- Kerosine 9.5
- Heating oil, No. 2 9
- Gas oil, 48-52 d.i. 9.125
- Fuel oil, bunker "C" $2.10

New York Harbor, barges
- Gasoline, 89 oct reg. 12.25
- Kerosine 10.85
- Heating oil, No. 2 ..... 10.35
- Fuel oil, No. 6 ..... $2.65

Okla.-Group 3, northern shpt, bulk
- Gasoline, 86 oct. reg. 11-11.5
- Kerosine 10.25-10.5
- Heating oil, No. 2 ..... 9.25-9.5
- Fuel oil, No. 6 ..... $2.00-2.25

Chicago, bulk
- **Gasoline, 86 oct reg 12.25**
- Heating oil, No. 2 ..... 10.6-11.1
- Fuel oil, No. 6, high sulfur 7.9-8.5

Los Angeles, rack
- **Gasoline, 84 oct reg 12-13.15**
- **Stove dist., PS 100 ..... 9.25-10.2**
- **Diesel fuel, PS 200 ..... 9-9.5**
- **Light fuel, PS 300 ..... $2.65**
- **Heavy fuel, PS 400 ..... $2.10-2.15**

Natural Gasoline, Grade 26-70
- FOB Group 3 5
- FOB Breckenridge, Tex. 4.5

Penna Lubes
- Bright stock, 25 p.t. 23-24
- 200 vis. neutral, 25 p.t. 20-21

Mid-Continent Lubes, Tulsa basis
- Bright stock, solvent 95 v.i. 23-25
- Neutral, solvent, 200-210 vis. 18.75-20.75

Gulf Coast Lubes
- Bright stock, solvent, 95 v.i. 25
- Neutral, solvent, 200 vis. 21.5

Eastern Hemisphere

Singapore, cargoes
- Avgas, Grade 100/300 ..... 18.375
- Gasoline, 79 oct research 10.5
- Gasoline, 70-72 oct motor method 10.25
- Kerosine 10.125
- Gas oil, 48 d.i. minimum 9.75
- Fuel oil, light $3.30

KEY PRICES—CRUDE OIL

(2¢ differential per deg. of grav. applies except as noted)

Western Hemisphere

United States (at the well)
- Mid-Continent, 36.0-36.9 ..... $2.82
- North Dakota, 36.0-36.9 ..... 2.82
- Texas:
  - Gulf Coast, low cold test, 26.0-26.9 ..... 2.95
  - Gulf Coast, upper and lower, 26.0-26.9 ..... 2.82
  - West Texas sweet, 36.0-36.9 ..... 2.82
  - West Texas-New Mexico intermediate, 36.0-36.9 ..... 2.75
  - West Texas-New Mexico sour, 32-0-32.9 ..... 2.61
  - East Texas, flat price 2.90
  - Mirando, 28.0-28.9 ..... 2.96
- Illinois Basin, flat price 3.00
- Penna. Grade, Bradford dist., flat price 4.00
- California, Signal Hill, 21.0-21.9 ..... 2.41†
- North Louisiana-Arkansas, 36.0-36.9 ..... 2.82
- Wyoming sweet, 36.0-36.9 ..... 2.82
- Wyoming sour, 32.0-32.9 ..... 2.48

Canada (flat prices, at the well)
- Acheson-Stony Plain (Alta.) D-2, D-3, L.C. 2.54
- Leduc-Woodbend, (Alta.) D-2, D-3 ..... 2.60
- Redwater (Alta.) D-3 ..... 2.49
- Daily-Mississippian (Man.) 2.34
- Smiley-Viking (Sask.) 2.26

Venezuela (Cargoes, FOB lifting port designated)
- Cumarebo, 48-0-48.9, Tucupido 3.40
- San Joaquin, 41.0-41.9, Puerto la Cruz 3.04
- Oficina, 35.0-35.9, Puerto la Cruz 2.80
- Tia Juana Medium, 26.5-26.9, Amuay 2.30*
- Bachaquero, 16.5-16.9, Amuay, Las Piedras 1.90**
- West Tarra, 40.0-40.9, Cardon 3.05
- Lagunillas Heavy, Amuay, Cardon, Las Piedras, flat price 2.05

Differential per ½ deg. grav.: (*) 2.5¢ bbl, (**) 3.5¢ bbl.
†Differential per deg. of grav. varies.

Eastern Hemisphere

Middle East, Persian Gulf (Cargoes, FOB lifting port)
- Arabian, 36.0-36.9, Ras Tanura 1.97
- Basrah, 32.0-32.9, Fao 1.79
- Iranian, 34.0-34.9, Bandar Mashur 1.91
- Iranian, 34.0-34.9, Abadan 1.86
- Iraq, 36.0-36.9, Fao 1.87
- Kuwait, 31.0-31.9, Mian-al-Ahmadi 1.72
- Qatar, 39.0-39.9, Umm Said 2.06

Middle East, Eastern Mediterranean
- Arabian, 36.0-36.9, Sidon 2.46
- Iraq, 36.0-36.9, Tripoli, Banias 2.46-2.49

Far East (Cargoes, FOB Lutong, Sarawak)
- Seria Light, 37-38 ..... 2.60

KEY TANKER RATES

(Last paid, per long ton, single voyage)

- U. S. Gulf-New York, clean ..... (USMC flat) $2.85
- **U. S. Gulf-New York, dirty ..... (USMC —5%) $2.71**
- **NWI-USNH, dirty ..... (USMC —7½%) $2.90**
- **NWI-UK/Continent, dirty ... (Scale +10%) 35/9***
- **Persian Gulf-UK/Cont., dirty . (Scale +30%) 68/5***
- **Persian Gulf-USNH, dirty .. (USMC —15%) $10.80**

**Sterling*

The Market Trend

The Big Question: What's With Gasoline?

The queasy period for gasoline is here. Product has suddenly loosened up. Refinery runs look high. And about the only thing that seems sure is that prices probably will get easier before they get strong.

Scattered advances in Midwest and Mid-Continent quotations last week don't hide the fact that gasoline, nationwide, looks easy, if not downright soft. Along the Mississippi, there's motor fuel for early sale all the way from Arkansas City, Ark., to East St. Louis, Ill. The West Coast is long. About seven cargoes can be lined up for prompt lifting at the Gulf. You can buy 98-octane premium in tanker loads at 0.25¢ off prices generally quoted for 97. And when a refiner gets an offering from another refiner, his stock answer is, "Why don't you cut your runs?"

But a saving grace for oil markets is that products, once sold, are totally consumed in a short time. This means that any surplus—no matter how great—can be straightened out before too long by reduced refinery operations. Last week, Sinclair Refining Co. started the trend in this direction by cutting runs about 35,000 b/d, or 8%.

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PW-3-9

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Usual way to give a discount is to set up a pump on the premises of an industrial consumer. In one small town (pop. 30,000) there are 20 such factory pumps, and eight of these plants in turn sell gasoline to their employees at lower-than-retail prices.

Dealers complain that motorists who buy gasoline at "industrial" discounts "have the nerve" to come to their service stations for free water, battery service, and windshield wiping. But not for gasoline.

Distillates:

Domestic markets are dead quiet, but there's some export interest. Two gas oil cargoes were sold to Europe. A South American buyer wants three more.

Resid:

Argentina is in the market for 19 cargoes of bunker "C" fuel for loading in May and June. Bids will be opened simultaneously in New York and Buenos Aires on Mar. 16. Offerings may not be too heavy against this requirement, for some international suppliers still are not looking for new heavy fuel accounts.

Crude:

International oil companies are thinking of stipulating an hour of the day, as well as the date itself, when making future changes in prices for Middle East crudes. Latest change by French interests was made effective at Midnight Greenwich time. (Texas prices usually change at 7 a.m.)

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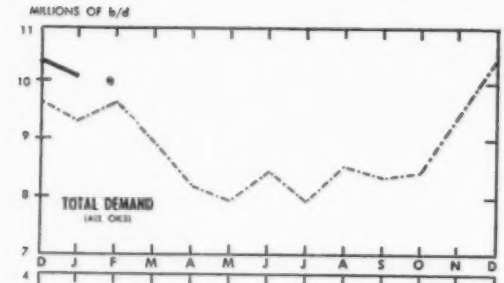
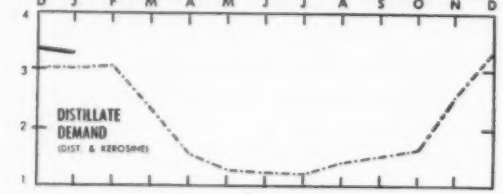
PETROLEUM WEEK'S

Fingertip Figures



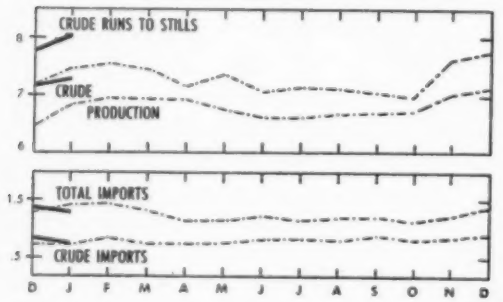
TOTAL DEMAND

Latest 4-week average	9.525
Year ago	9.333



DISTILLATE DEMAND

Latest 4-week average	2.842
Year ago	2.910



RUNS TO STILLS

Latest week	8.093
Previous week	8.084
Year ago	7.462

CRUDE PRODUCTION

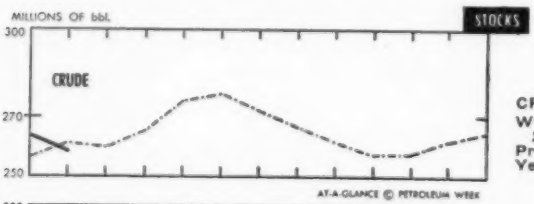
Latest week	7.146
Previous week	7.183
Year ago	6.806

TOTAL IMPORTS

Latest week	1.356
Previous week	1.382
Year ago	1.378

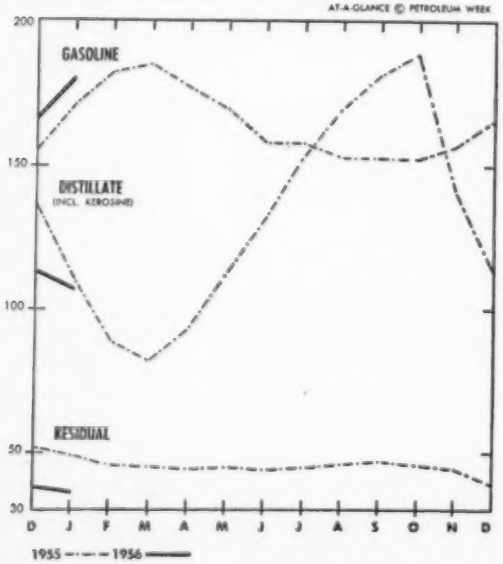
CRUDE IMPORTS

Latest week	.925
Previous week	.851
Year ago	.807



CRUDE STOCKS

Week ended 2.25	255.5
Previous week	256.6
Year ago	259.9



GASOLINE

Latest week	194.7
Previous week	194.0
Year ago	182.3

DISTILLATES

Latest week	90.2
Previous week	93.0
Year ago	84.8

RESIDUAL

Latest week	36.0
Previous week	37.1
Year ago	44.3

PETROLEUM DEMAND in the first two months of 1956 ran about as expected, in spite of a poor showing in February. Complete API data now available for January and February indicate total demand in the two months averaged 9,835,000 b/d, a gain of 4.3% over the like period of last year.

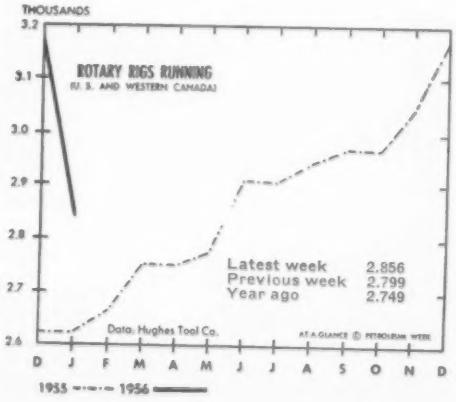
Gasoline was the star performer in the period, offsetting a lower-than-expected demand for middle distillates and residual. Gasoline demand, averaging 3,413,000 b/d, was up 6% over the first two months of 1955. Demand for distillates (including kerosine) rose 3.6%, while demand for residual fuel oil declined by 2.1%.

Total demand in February, averaging 9,548,000 b/d, was 20,000 b/d less than the previous February. It was the first year-to-year monthly decline since September, 1954. Gasoline was the only major product to show a gain in demand in February over a year previous; it increased by 122,000 b/d. But this was not enough to offset a decline in February demand for distillates (off 144,000 b/d) and for residual fuel (off 65,000 b/d).

The decline in February was due to milder weather and unusually high demand in February, 1955 (PW—Mar.2'56,p36).

* * *

RUNS TO STILLS set another all-time record last week, and this one may hold for awhile. Sinclair is cutting its runs back by 35,000 b/d during the next three months, and there is urgent need for other refiners to follow suit. Gasoline stocks, at a record level, are considered ample—if not heavy—by most economists.


THOUSANDS
ROTARY RIGS RUNNING
(U. S. AND WESTERN CANADA)
Latest week 2.856
Previous week 2.799
Year ago 2.749
Data: Hughes Tool Co.
AT-A-GLANCE © PETROLEUM WEEK
D J F M A M J J A S O N D
1955 1956

W. J. SUTTON has been named general sales manager for Anderson-Prichard Oil Corp. **T. A. Eustice** succeeds Sutton as assistant general sales manager. New division sales managers are: **John Mayhall,** Kansas City; **J. E. McKinney,** Oklahoma City; **Lee Blum,** Omaha; and **Russell Settlemyer,** Des Moines.

R. S. CONLY has been named assistant general foreman of the light-ends department at Humble Oil & Refining Co.'s Baytown (Tex.) refinery. **C. A. Hansen, Jr.,** will be assistant general foreman, and **J. W. Ferrell** will be a foreman, in the refinery's cracking and polymerization department.

C. T. CARTER has been named general manager of crude oil pipelines for Sinclair Pipe Line Co., at Independence, Okla. **H. P. Buser** succeeds Carter as head of the oil movements department.

S. W. TOTTEN has been named vice-president and general manager of western exploration for The California Co.

JACK BARCKLOW, JR., has resigned as geologist for British-American Oil Co., at Amarillo, Tex., to join Tennessee Gas Transmission Corp. as a geologist at Oklahoma City.

FRED L. MACE (right) will manage Alexandria (Egypt) operations, and **ROBERT F. FEI** (left) has been named drilling superintendent, for Sahara Petroleum Co., a subsidiary of Continental Oil Co. Mace was formerly assistant to the general manager at Alexandria. Fei recently resigned as general superintendent of National Petroleum Co., Egypt.

CRAIG NORTON has resigned as petroleum engineer for Superior Oil Co., at Chickasha, Okla., to become an engineering consultant for William Ross Cabeen & Associates, at Denver.

W. H. CONKLING, consulting geologist in Abilene, is now a consultant for Sequoia Oil Co. and its affiliate Texas Crude Oil Co. Before becoming a consultant, Conkling was chief geologist for Plymouth Oil Co., at Sinton.

R. N. COOPER has been named vice-president and assistant secretary of Derby Refining Co., Wichita. **Frank C. Boyd** will be the company's new sales manager, and **Roy Winter** will manage Derby's northern division at Lincoln, Neb.

T. A. HELLING has been elected chairman of the board, and **GEORGE J. PETERSCHMIDT** has been chosen president of El Dorado Refining Co. **Sam L. Roberson** has been named executive vice-president and treasurer.

E. E. (Al) WALL has been named general sales manager for California Oil Co., a subsidiary of Standard Oil Co. of California. **C. G. Wood** succeeds him as Fresno regional sales manager for the parent company. **F. A. Hay** will manage the company's supply and distribution department, and **L. E. Bloomer** will be in charge of retail sales.

WILLIAM E. DOBBINS will manage central-region sales for Clark Bros. Co., one of the Dresser Industries. He will coordinate the company's Houston, Tulsa, and Chicago offices, and will make his headquarters at Houston. Dobbins was formerly manager of Clark's Washington office.

PAUL CHAMBERS will represent the natural gas and natural gasoline operations department of Signal Oil & Gas Co. at the company's newly established office in Tulsa. He was formerly with Gulf Oil Corp.

JOHN R. MILLER and **J. W. MULLINIX** have formed Mullinix & Miller, an oil leasing and consulting firm, at Casper, Wyo. Miller was formerly an independent Casper consultant, and Mullinix recently resigned as landman for Skelly Oil Co.

R. L. WHEELOCK, Corsicana (Tex.) independent oil and gas producer, has been named to the Texas Good Neighbor Commission. Wheelock has served as a director of the American Petroleum Institute for the past 25 years.

V. L. (Fred) SMITH will superintend Sunray Mid-Continent Oil Co.'s North and West Texas district, at Midland. **J. F. (Duke) Dingee** succeeds him as Oklahoma district superintendent, at Oklahoma City. **E. F. Patrick** has been named superintendent of the production department's western area operations.

W. W. (Bill) CHARLES, JR., has been named chief geologist for Canadian Oil Companies, Ltd. He was formerly chief geologist for Central Leduc Oils, Ltd.

WILLIAM T. PYOTT (right) has been named executive vice-president, and **DON H. LEWIS** (left) has been appointed vice-president and a director, of Pipe Line Technolo-

UNUSUAL OPPORTUNITY FOR TOP REFINING EXECUTIVE

If you already have a good top executive job in the refining industry but want to further improve your future with a large fully-integrated mid-western oil company—*this may be the most important advertisement you ever read!*

A proven ability to manage and operate a progressive and aggressive refining program including the manufacture of gasolines, lubricating oils and waxes is required . . . a technically trained man with considerable practical operating experience would be ideal . . . abilities in personnel management of more than 1,500 employees is essential. You and your family will enjoy living in one of the most metropolitan cities in the south-west.

If you are this executive, between the ages of 45 and 50, interested in a vice-president's status (you may be one now—and we hope so), a liberal stock option arrangement in a large fully-integrated company which is still growing, and a salary commensurate with abilities and production results—*it will profit you to write today for appointment interview.*

●

P9495 PETROLEUM WEEK

520 North Michigan Avenue, Chicago 11, Illinois

PROFESSIONAL SERVICES

Petroleum Service Management Company, Inc.

Consulting Engineers and Geologists

Research, Evaluations, Bank Loan Reports, Investigations, Reports for Underwriting Issues, Well Supervision, Property Management, Contract Leasing, Drilling Deal Recommendations, Purchase of Proven Oil and Gas Properties. Complete management and supervision, U.S.A.-Foreign Refinery Design, Construction and Management. We handle all of your operations on straight retainer and management fee basis, or participating and retainer basis. 306 Commerce Building, Box 1992, Abilene, Texas. Phone 2-9621.

JAMES P. O'DONNELL

Engineers

Professional Engineering for the Petroleum and Process Industries

39 Broadway, New York 6, N. Y. — Bowie Building, Beaumont, Texas

PIPE LINE ENGINEER

Graduate engineer with 4-7 years pipe line experience for engineering department of major crude and products pipe line company. Location in Texas. Salary according to qualifications. Give full details of experience.

P9350 PETROLEUM WEEK
520 N. Michigan Ave., Chicago 11, Ill.

CLASSIFIED

DISPLAYED RATE

The advertising rate is $12.60 per inch for Equipment and Business Opportunity advertising appearing on other than a contract basis. Contract rates quoted on request.

Employment opportunities — $14.80 per inch, subject to Agency Commission.

UNDISPLAYED RATE

$1.50 a line. Minimum 3 lines. To figure advance payment count 5 average words as a line. (See ¶ on Box Numbers.)

POSITION WANTED. Undisplayed rate is one half of above rate, payable in advance.

PROPOSALS, $1.50 a line an insertion.

INFORMATION

BOX NUMBERS count one additional line in undisplayed ads.

NEW ADVERTISEMENTS accepted 10 days prior to issue date.

gists, Inc. Pyott has been an officer and director of the company since 1952. Lewis recently retired as vice-president of Shell Pipe Line Co.

ROY E. CARUTHERS has been named assistant manager of marketing for Continental Oil Co.'s central region, at Oklahoma City. Caruthers joined Conoco in 1946 as a district sales representative at Ponca City, Okla., and in 1954 was named assistant manager of the company's Oklahoma City sales division.

G. W. GILLESPIE has resigned as geologist for D. H. Lovelace Drilling Co. to become a consultant at Mt. Carmel, Ill.

PHILLIPS PETROLEUM CO. has announced several new appointments in its divisional offices: At Wichita Falls, **O. M. Hudson** will be division manager, **J. H. Ball** will be assistant division manager and division landman, and **F. H. Olson** will be division geologist; at Shreveport, **H. J. Tyler** will be division manager, and **J. C. Smith, Jr.**, will be assistant division manager and division geologist; and at Evansville, Ind., **L. G. Williams** will be division geologist.

H. R. MOORMAN, (right) manager and executive vice-president of Mobil Oil of Canada, Ltd., will join Socony Mobil's worldwide producing committee with headquarters in New York. He will be succeeded in Canada by **FRED H. MOORE**, (left), assistant to the president of Magnolia Petroleum Co., Socony Mo-

bil's southwest affiliate. Moorman joined the company in 1939 as assistant chief geologist. In 1940 he became chief geophysicist of the company's Venezuelan affiliate, and in 1948 became assistant manager of exploration there. In 1951 he returned to New York as chief geophysicist. He transferred to Calgary in 1952.

CARL E. REISTLE, JR., vice-president in charge of production for Humble Refining Co., Houston, has been elected president of the American Institute of Mining, Metallurgical & Petroleum Engineers. During World War II, Reistle was technical adviser for the Petroleum Administration for War. He was also national vice-chairman of the Oil Industry Advisory Committee for the Office of Price Administration.

CHESTER E. WEGER, vice-president and director of Cities Service Refining Co., has been elected to the board of directors of Cities Service Co.

JACK F. GORDON, former manager of The Western Co.'s Odessa district, has been named Western's chief pumping-services engineer at Midland. **V. J. Mercier** has been appointed chief wire-line engineer at Midland. **C. V. Helm** has been promoted from district manager at Healdton, Okla., to regional operations manager of the West Texas-New Mexico region, with offices in Midland. **Charles Simmons**, former district manager at Healdton, will manage operations of the North Texas-Oklahoma region, also at Midland.

OLIVER C. JOHNSON will assist the general manager of Socony Mobil Oil Co.'s manufacturing department in New York. He was formerly manager of the company's East St. Louis (Ill.) refinery.

R. G. HILTZ, Stanolind Oil & Gas Co., has been elected president of the Petroleum Engineers' Club. Other new officers are: **Leroy Gideon**, Rowan Drilling Co., executive vice-president; **John G. Richards**, Ft. Worth National Bank, first vice-president and program-committee chairman; **F. H. Callaway**, Keller & Peterson, second vice-president and assistant program chairman; **Floyd D. Sawyer**, Welex Jet Services, Inc., third vice-president; and **Robert E. Steanson**, Dowell, Inc., secretary-treasurer.

JOE GIEB, JR., has joined White Eagle Oil Co. in Midland as division landman. He succeeds **Earl C. Funk, Jr.**, who has been transferred to company headquarters in Tulsa. Gieb will be assisted by **Dewey G. McKinney**, formerly in the Tulsa office.

T. B. HOUCK, West Texas-New Mexico drilling superintendent for Parker Drilling Co., Midland, has been named acting general manager of drilling and production for Pantepec Oil Co. in Tel Aviv, Israel.

GERALD N. SMITH will manage exploration for McRae Oil & Gas Corp., Midland. He has had 25 years of exploration experience in the Mid-Continent, Gulf Coast, Rocky Mountain, and Alberta areas. **G. D. Simon** will manage production for McRae. Simon has been associated with The Texas Co. and R. DeChicchis, an independent.

MAURICE L. BROWN and **EARL M. BURCH**, partners in Century Production Co., have formed Colorado-Century Co., Denver, for operation in the Denver Julesburg basin. **Elliott Bratt**, former district geologist for the Cooperative Refinery Assn., will be in charge of the new company's operations.

R. K. (Bob) FRANKLIN, president of Rolo Mfg. Co., has been named chairman of the National Oil-Equipment Manufacturers & Delegates Society's national board of regents. **W. L. (Bill) Childs, Jr.**, Reed Roller Bit Co., is the new secretary-treasurer.

VERNON BLAIN has been elected president of Johnn Drilling Co., Ft. Worth. He was formerly vice-president of the company. Blain succeeds **John Cockburn** who recently resigned. **John St. John** has been elected executive vice-president.

RAY A. SING, **(right)** vice-president of the Big Horn Drilling Co., Casper, Wyo., is president of the newly-formed Casper "Roughneck" Club. Here he accepts a portrait of "Joe Roughneck" from **L. D. (Red) Webster**, vice-president of Lone Star Steel Co.

ADVERTISERS IN THIS ISSUE

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Walnut 5778

Boston 6 Edward A. Callahan, Jr.
350 Park Square Bldg.
Hubbard 2-7160

Chicago 11 G. L. Hackley, Jr.
W. F. Holbrook
520 North Michigan Avenue
Mohawk 4-5800

Cleveland 15 J. E. MacArthur
1510 Hanna Bldg.
Superior 1-7000

Houston 25 David G. Sawyer
724 Prudential Bldg.
Jackson 6-1281

Los Angeles 17 William C. Woolston
1125 W. Sixth St.
Madison 6-9351

New York 36 Edward A. Callahan, Jr.
Donald R. Thompson
330 West 42nd Street
Longacre 4-3000

Philadelphia 3 W. A. Potter
Architects Building
Rittenhouse 6-0670

San Francisco 4 T. Evans Wyckoff
68 Post Street
Douglas 2-4600

Tulsa 19 J. A. Hartley
209 Constantine Bldg.
601 South Boston
Gibson 7-7767

England, London E.C.4 Herbert Lagler
McGraw-Hill Co., Ltd.
95 Farrington St.

Percentage Depletion: A Proven Tool

MORE REASON why Congress shouldn't tamper with the 27.5% depletion allowance is provided by the estimate that places proved Middle East crude oil reserves, conservatively, at 230-billion bbl.

This is nearly seven times known U.S. reserves! Actually, the disparity probably is even greater than that—and bound to grow more so. There isn't anybody who doesn't think that the drill bit is still far from exposing the full potential of Middle East oil.

The significance to our own country of this accelerating shift in the balance of reserves from West to East is plain to see. It serves to underscore dramatically a great need—the need to make sure that every possible encouragement is given the domestic industry to press on with vigor its costly efforts to find more oil at home. Only if this is done can we hope to avoid—or long postpone—becoming some day utterly dependent on foreign oil.

THIS IS NOT TO ARGUE against foreign oil. The U.S. has a tremendous interest in that, too. And it's growing bigger—which is why it's good for the country to have more and more Americans, many independents among them, becoming active abroad.

The point is, rather, to emphasize a simple fact: that the surest way for us to become a "have not" nation in oil is to remove the incentives that now impel the domestic oil industry, despite lengthening odds and soaring costs, to intensify its search for more crude reserves.

A MEASURE of the size of the task that faces the domestic industry was afforded by PETROLEUM WEEK on February 24, in the page of Petroleum Comments by W. M. Jablonski.

As pointed out there, the U.S. will be consuming about 40-billion bbl. of oil during the next 10 years. That's a total of one-third greater than existing proved crude oil reserves in this country. And it means that in just these next 10 years, U.S. oil men have to find in the U.S. something like 48-billion bbl. of crude petroleum! (That's after making allowances for the additional reserves that will be needed to sustain reserves in their present ratio to production, and after allowing also for increased imports in line with the growth in demand.)

If this doesn't impress the sceptics, then let them consider that 48-billion bbl. is a sum greater by 17-billion bbl. than the sum of all the crude oil found in this country in the preceding 10 years. Stated another way, it means having to find 4.8-billion bbl. annually against only 3.1-billion bbl.

CONGRESSMEN AND OTHERS can talk tax theories all they want. Self-styled liberals can label the depletion allowance a "grab." And they can say—as did one writer in The New Republic magazine recently—that all the allowance does is encourage oil men "to open up new fields so as to burn up the nation's birthright as fast as possible rather than to husband it against some future day of Armageddon."

But regardless of all this talk, the basic fact remains that nothing succeeds like success. And it is a fact that the depletion allowance *does encourage* exploration and it *does result* in the opening of new oil fields.

Measured against the national need, this is no time to be tempting the fates by monkeying with the oil-getting tool that percentage depletion has proven itself to be.

Ed- This is something for every oilman to think about!
G.H.

PUBLISHER'S PAGE

Whose Job Is It?

Whose job is it to see that the oil business has a better understanding at the hands of the public? Is it just the job of the American Petroleum Institute and its committees? Is it just the job of the company executive who may be a heavy stockholder—or who may not be but who has an interest in keeping a good job?

No, the responsibility goes far deeper than that. It goes to *every* individual who works in the oil business whether he works out in the oil fields, in a refinery, on a pipe line or works at a pump in a filling station.

If he intends to stay in the oil business then he had better do everything he can to help the oil industry get and maintain a good name at the hands of the public. His job is likely to be just about as stable as is the reputation of his industry

How can you or anyone employed in the oil industry help it to secure and maintain a good name?

The answer to that is easy:

- So conduct yourself in all of your operations as an oil man in contact with the public so that the public will feel "that's a good oil company to do business with."

- If you hear somebody making a statement about the oil industry which your own information tells you is untrue, correct it in a friendly manner.

It is just as simple as that. If the several million employes of the oil industry in the U. S. will do just these two things, the results will be far greater than could be expected from a multi-million dollar advertising campaign.

And just as an editorial writer in one of our publications said last month, "this is not a job for just a week in the year —it is an every-day job, 365 (leap year 366) days in the year."

Ray L. Dudley

This editorial, of vital importance to all oil men and women, appeared in the January, 1956 issue of WORLD OIL and is presented for your information by the

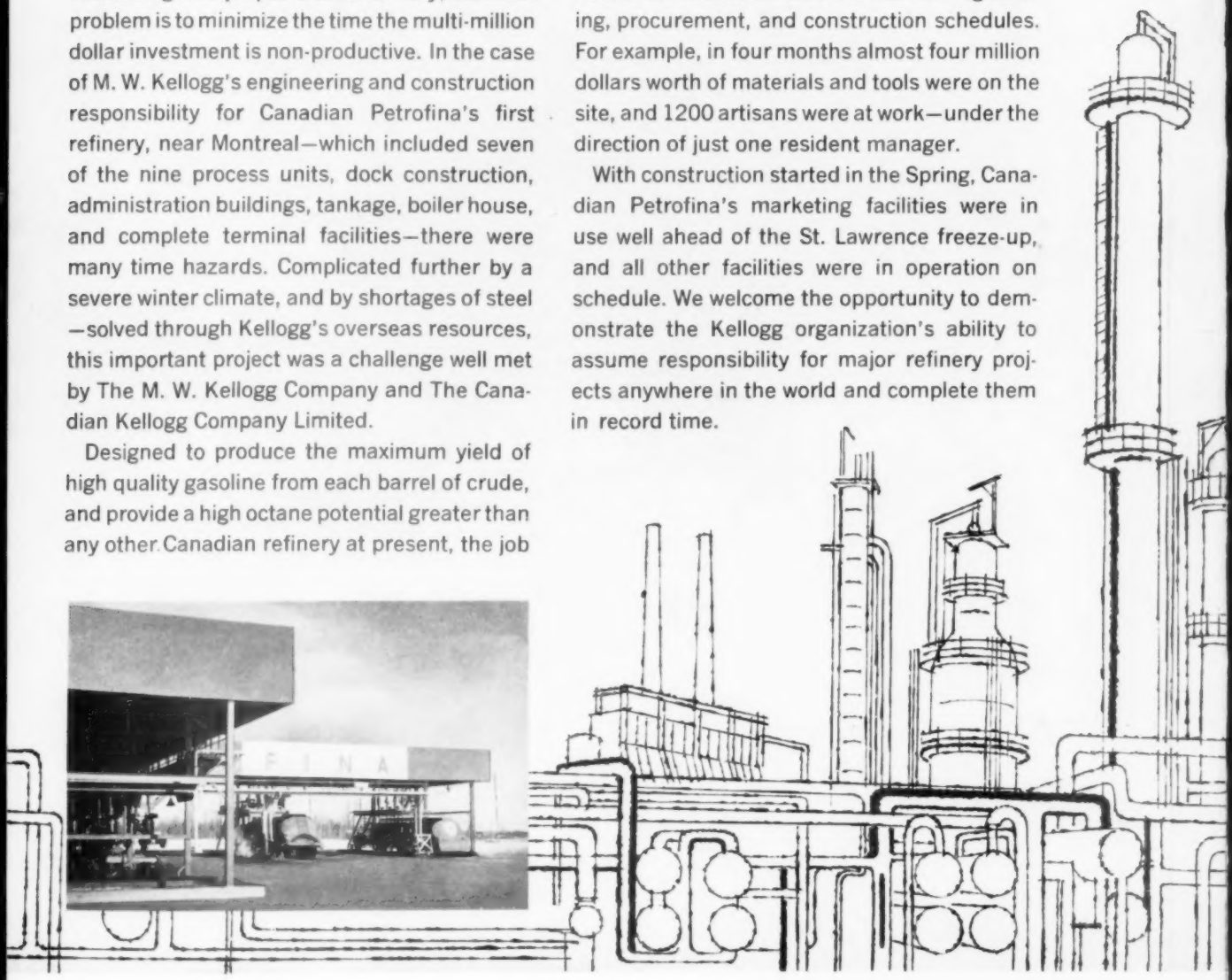
AMERICAN PETROLEUM INSTITUTE
50 West 50th Street, New York 20, New York

Helping Another Oil Refiner Grow —with Fewest Growing Pains

In building a major petroleum refinery, the main problem is to minimize the time the multi-million dollar investment is non-productive. In the case of M. W. Kellogg's engineering and construction responsibility for Canadian Petrofina's first refinery, near Montreal—which included seven of the nine process units, dock construction, administration buildings, tankage, boiler house, and complete terminal facilities—there were many time hazards. Complicated further by a severe winter climate, and by shortages of steel —solved through Kellogg's overseas resources, this important project was a challenge well met by The M. W. Kellogg Company and The Canadian Kellogg Company Limited.

Designed to produce the maximum yield of high quality gasoline from each barrel of crude, and provide a high octane potential greater than any other Canadian refinery at present, the job called for maximum coordination of engineering, procurement, and construction schedules. For example, in four months almost four million dollars worth of materials and tools were on the site, and 1200 artisans were at work—under the direction of just one resident manager.

With construction started in the Spring, Canadian Petrofina's marketing facilities were in use well ahead of the St. Lawrence freeze-up, and all other facilities were in operation on schedule. We welcome the opportunity to demonstrate the Kellogg organization's ability to assume responsibility for major refinery projects anywhere in the world and complete them in record time.



REFINERY PROCESS DIVISION

THE M. W. KELLOGG COMPANY

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